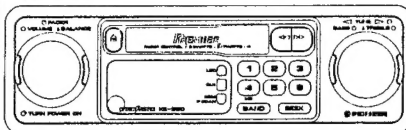


3148

Service Manual

• KE-250



ORDER NO.
CRT1332

CASSETTE CAR STEREO WITH FM/AM ELECTRONIC TUNER

KE-250

US

KE-3033

UC, XSG/UC

KE-3838

UC, ES, XSG/UC, XML/UC

Note:

- See the separate manual CX-197 (CRT1328) for the cassette mechanism description.

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3148

SAFETY INFORMATION (UC, US MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

SPECIFICATIONS

General

Power source	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	2.5 A
Dimensions (chassis)	178(W) × 50(H) × 135(D) mm
	[7(W) × 2(H) × 5-3/8(D) in.]
(nose)	104(W) × 48(H) × 34(D) mm
	[4-1/8(W) × 1-7/8(H) × 1-3/8(D) in.]
Shaft interval	147 mm (5-3/4 in.)
Weight	1.3 kg (2.9 lbs.)

Amplifier

Continuous power output is 3.2 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output	8.5 W × 2/7 W × 4 (EIAJ)
Load impedance	4 Ω (4 — 8 Ω allowable)
Preout output level/impedance	500 mV/100 Ω
Tone controls (bass)	±10 dB (100 Hz)
(treble)	±10 dB (10 kHz)

Tape player

Tape	Compact cassette tape (C-30 — C-90)
Tape speed	4.76 cm/sec. (+ 0.14 cm/sec. — 0.05 cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.13% (WRMS)
Frequency response	
(KE-250)	50 — 14,000 Hz (±3 dB)
Stereo separation	45 dB
Signal-to-noise ratio	
(KE-250)	52 dB (IHF-A network)

FM tuner

Frequency range	87.9 — 107.9 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 — 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA) (±400 Hz)
Three-signal intermodulation (desire signal level)	
(KE-250)	55 dBf
	(two undesire signal level: 110 dBf)

AM tuner

Frequency range	530 — 1,710 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±10 Hz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

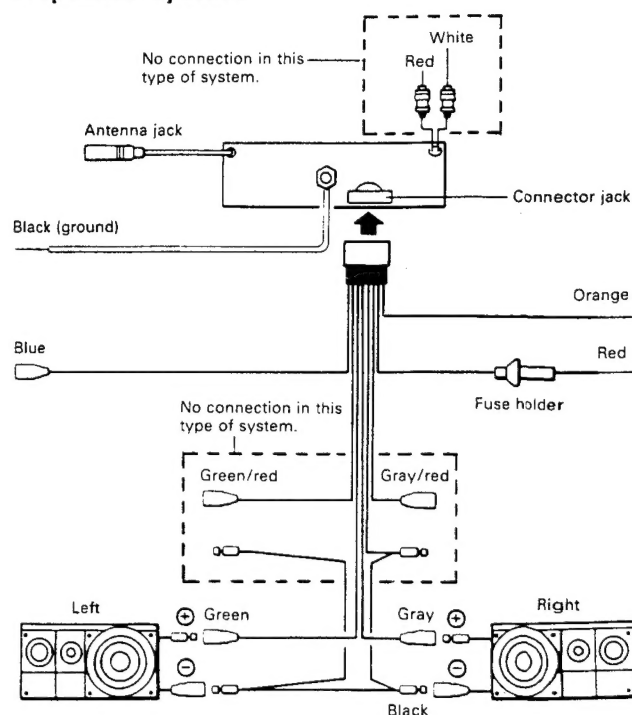
1. CONNECTIONS

Note:

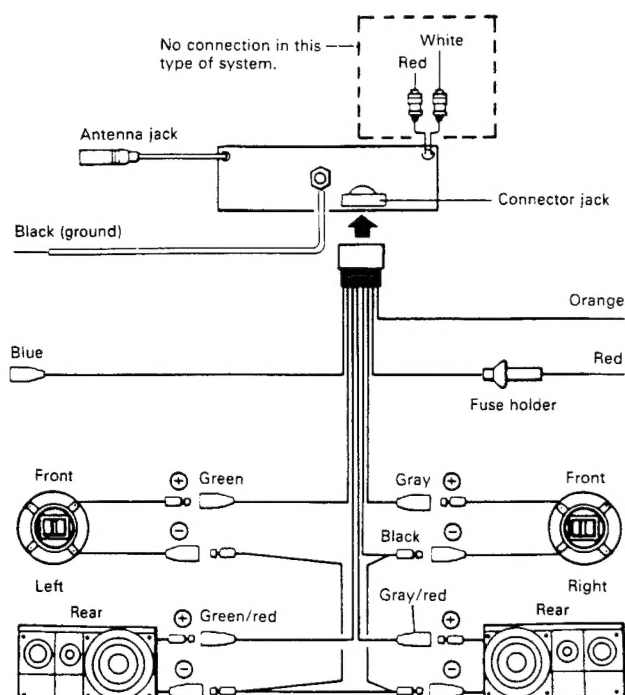
- To avoid shorts in the electrical system, be sure to disconnect the battery \ominus cable before beginning installation.
- Replace the fuse only with the type stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.
- Refer to the power amp owner's manual when connecting a power amp (sold separately) to the RCA pin jack.
- When the power amp is being linked with this system, be sure not to connect the blue lead to the amp's power terminal. Likewise, when linking this system with the auto-antenna, do not connect to power terminal for the antenna. Such connection can make overcurrent cause malfunctions.

Blue	If this unit is combined with a power amp, connect its blue lead to the blue lead (system control terminal) of the power amp. If combined with an auto-antenna, connect its blue lead to the relay control terminal of the auto-antenna. (MAX. 300 mA, 12 V DC)
Orange	To terminal always supplied with power regardless of ignition switch position.
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Black (ground)	To vehicle (metal) body.

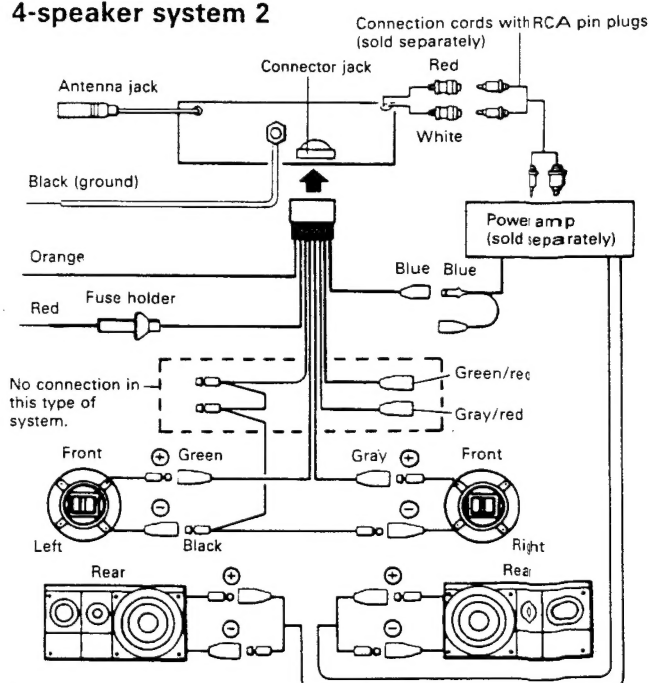
2-speaker system



4-speaker system 1



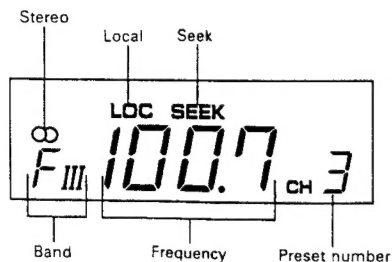
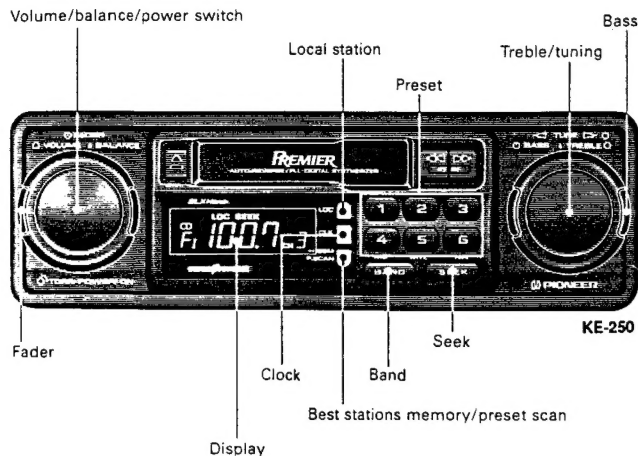
4-speaker system 2



Note:

Connect to the front speakers with the green and gray leads. If you connect with the green/red and gray/red leads, this unit's fader control will not operate.

2. USING THE RADIO



• Clock Switch

Each press causes the display to switch between clock and frequency.

• Best Stations Memory Button

Automatically tunes strong frequencies and assigns them to preset buttons 1 through 6 for one-touch automatic tuning. The best stations memory function is activated by pressing this button for approximately 2 seconds. The best stations memory function is indicated by ——— flashing on the display, and this function can be canceled by pressing the band switch. The frequency display returns once the best stations memory function is complete. The frequency displayed at this time is of the strongest station assigned to preset button 1 by the best stations memory function.

- 6 best (strongest) frequencies are memorized in the 6 preset buttons in the order of their strength, the strongest one being assigned to preset button 1.
- The frequencies previously assigned to the preset buttons are retained when 6 frequencies cannot be located.
- The best stations memory is in operation while ——— is flashing on the display.

• Before attempting operation...

- Set the fader control to the center position. (A click can be felt when the knob is in the center position.)
- 1. Turning the power switch to the right causes power to switch ON and the current frequency to appear on the display.
- Since the set is designed preferentially for tape play, eject a cassette tape, if mounted, before operating the radio.
- 2. Press the band switch to select the band.
- 3. Press the seek button and the seek tuning indicator will be displayed.
- 4. Turn the tuning knob to the left or right to tune in the desired frequency. (Turning to the right will increase the frequency.)
- 5. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
- 6. Adjust the tone. To adjust the treble, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.

• To enter a frequency into the preset memory...

- 7. Hold down one of the preset buttons (1-6) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.

Six FM1 frequencies, six FM2 frequencies, six FM3 frequencies and six AM frequencies can be entered.

• Local Station Switch

Pressing this switch increases the seek threshold level so that only relatively strong stations can be tuned in (local indicator will illuminate on the display). Local seek threshold level can be selected among four levels for FM and two levels for AM.

Holding this switch down for approximately 2 seconds and then turning the tuning knob to the right changes the display from L-1, L-2, L-3 to L-4. Turning the tuning knob to the left changes the display from L-4, L-3, L-2 to L-1. (L-1 and L-2 for AM.) The bigger the number, the higher the seek threshold becomes and only relatively strong stations can be tuned in.

• Fader Control

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control to the right decreases the volume of the rear speakers, while turning it to the left decreases the volume of the front speakers. With 2-speaker systems, set this control to the center position. (A click can be felt when the knob is in the center position.)

Important

A considerable amount of sound will continue to be produced from speakers of a 4-speaker system which have been cut by setting the fader control either to the front speakers or rear speakers. This is normal and does not indicate malfunction.

3. BLOCK DIAGRAM

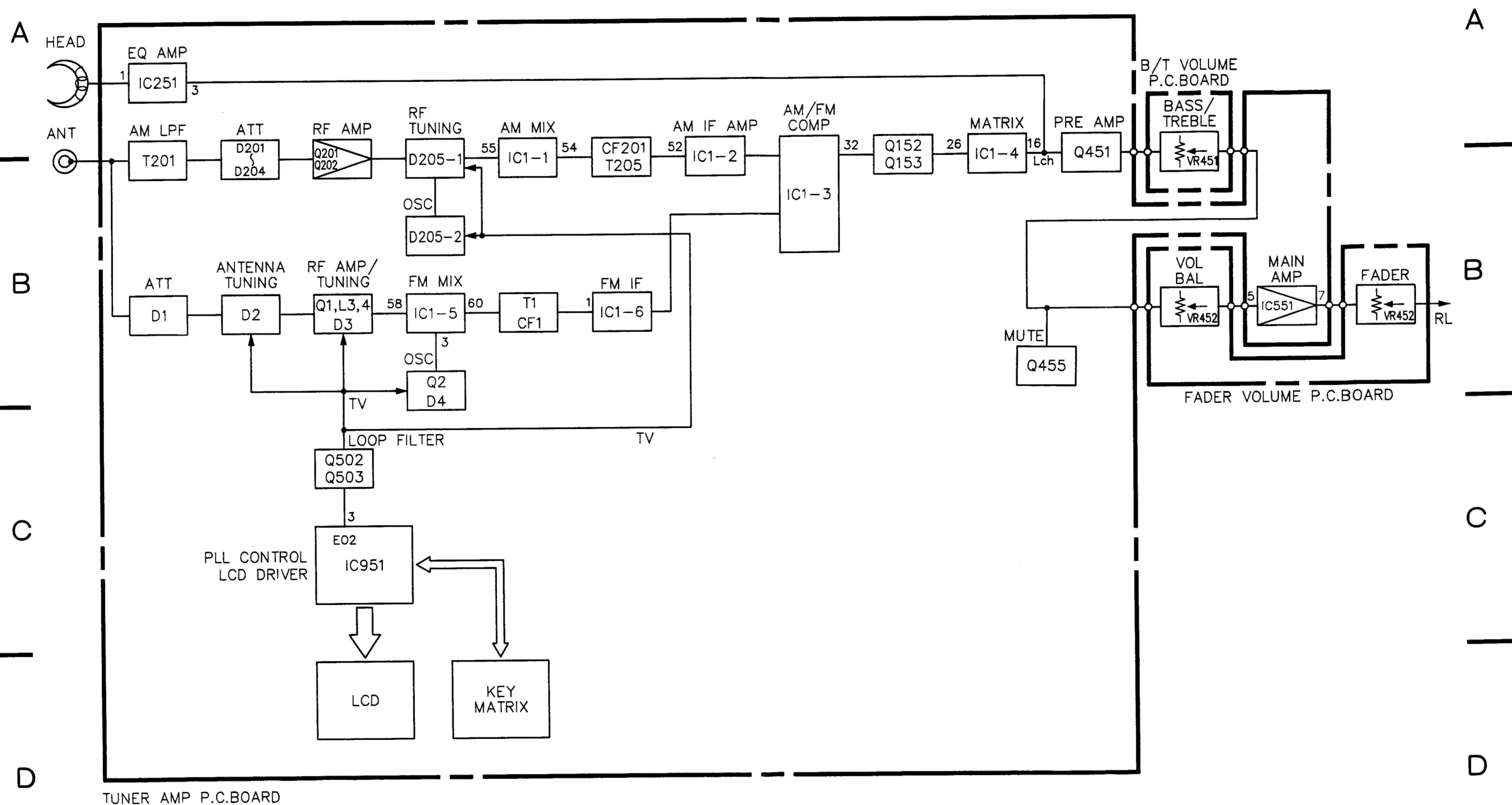


Fig. 1

4. DISASSEMBLY

- Removing the Case
- 1. Remove the two screws.
- 2. Insert and turn a screwdriver at locations indicated by arrows A to remove the case.
- 3. Raise the case to remove.

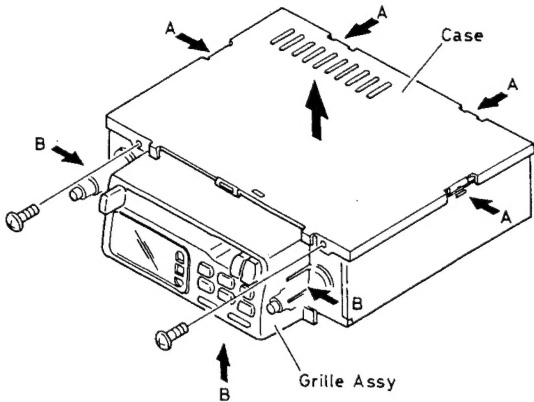


Fig. 2

- Removing the Grille Assy
- 1. Press the tabs at locations indicated by arrows B, and then pull grille assy.

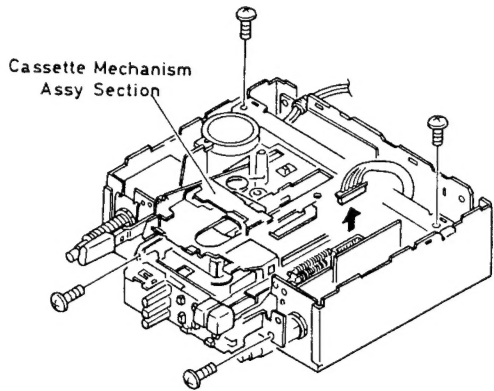


Fig. 3

- Removing the Tuner Amp P.C.Board
- 1. Remove the five screws and two nuts.
- 2. Unbend the tab indicated by arrow until straight.
- 3. Raise up on tuner amp P.C.board to remove it from the chassis.

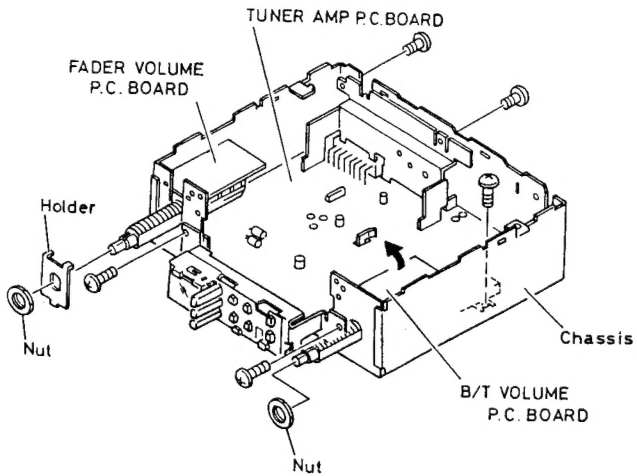


Fig. 4

5. ADJUSTMENT

NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

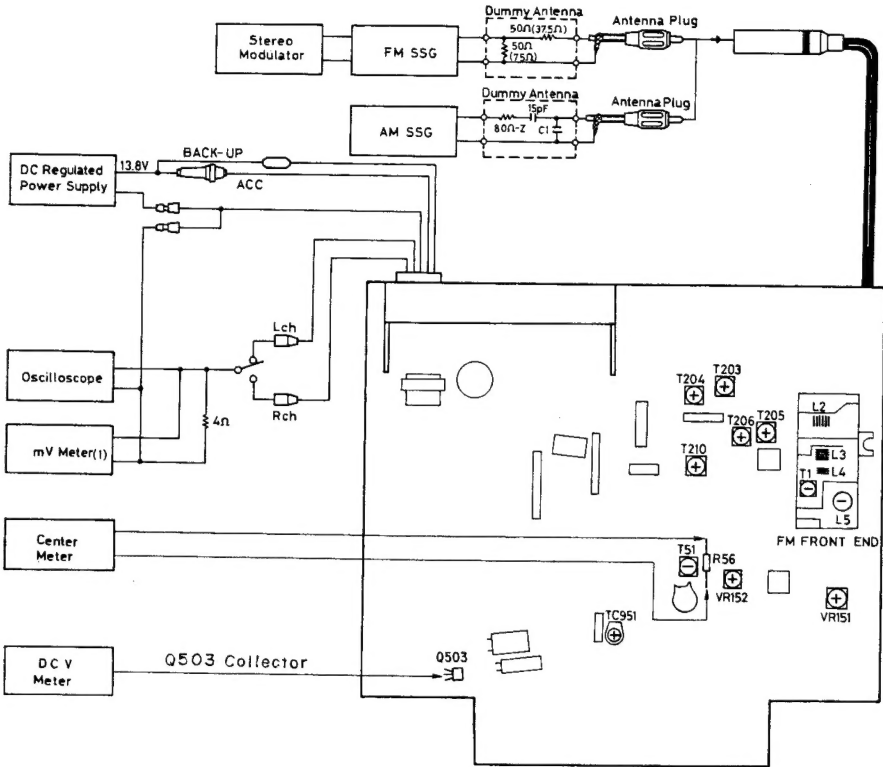


Fig. 5

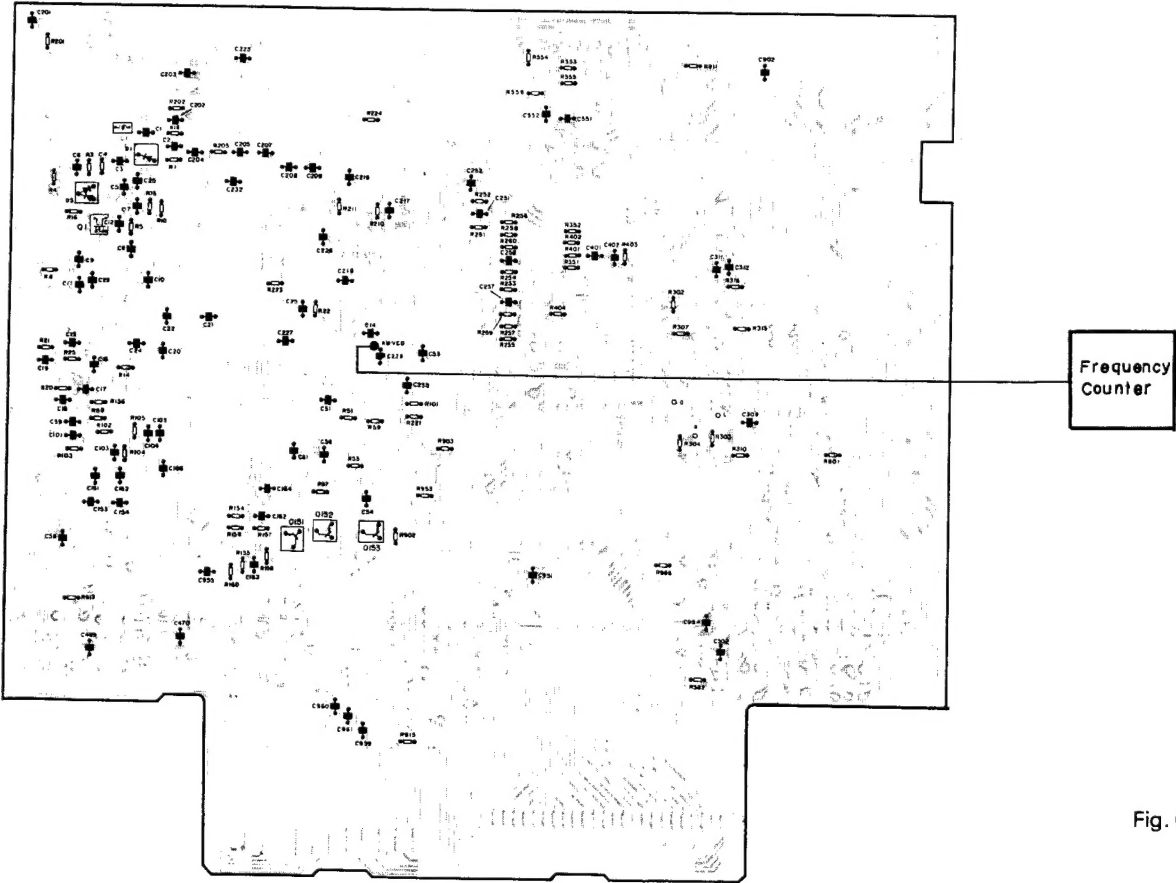


Fig. 6

FM ADJUSTMENT ※ 1 Stereo MOD.: Pilot=10%
 ※ 2 Stereo MOD.: 1kHz, L+R=90% , Pilot=10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
Tuning Volt	1	—	—	107.9 (UC) 108.0 (ES)	L5	DC V Meter: 7.0V
Tracking	1	98.1	15	98.1	L2, L4	mV Meter (1): Maximum
	2	98.1	15	98.1	T1	mV Meter (1): Maximum
IF	1	98.1 Unmodulated	65	98.1	T51	Center Meter: 0
Pilot Cancel	1	98.1※ 1	65	98.1	VR151	mV Meter (1): Minimum (MPX Filter: OFF)
ARC	1	98.1※ 2	40	98.1	VR152	mV Meter (1): Separation 5dB

AM ADJUSTMENT ※ 3 : ES model when tuning step at 9kHz.

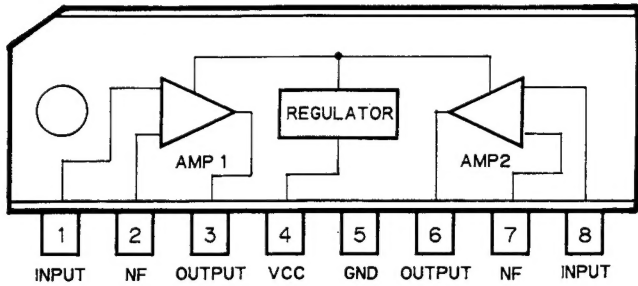
	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	—	—	530 (531) ※ 3	T210	DC V Meter: 1.0V
Tracking	1	1.000 (999) ※ 3	20	1.000 (999) ※ 3	T203, 204, 205, 206	mV Meter (1): Maximum

CLOCK ADJUSTMENT

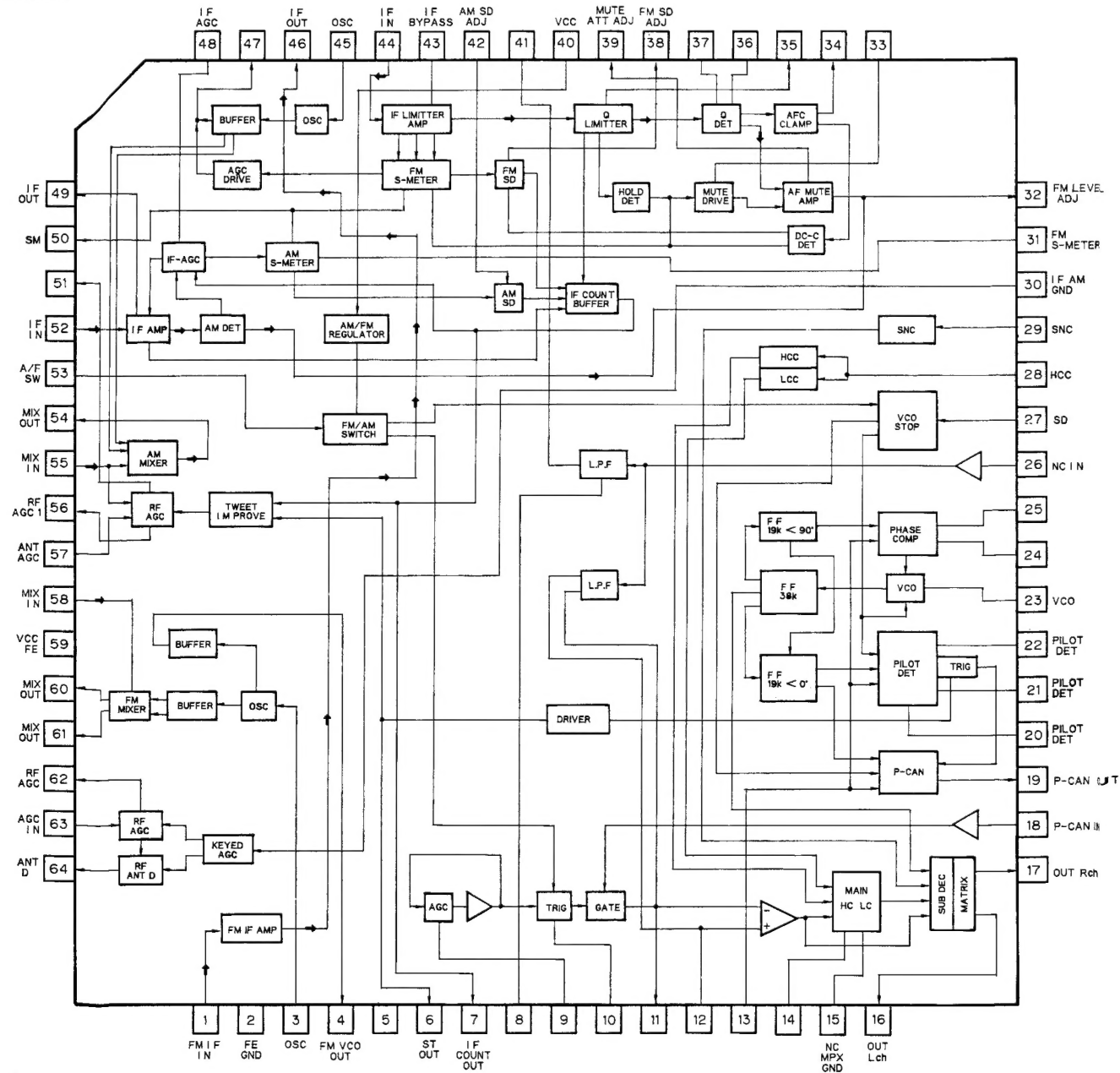
	No.	Band	Displayed Frequency (kHz)	Adjusting Point	Adjustment Method
	1	AM	1.710 (UC)	TC951	Frequency Counter: 2160kHz ± 40Hz
			1.602 (ES)	TC951	Frequency Counter: 2052kHz ± 40Hz

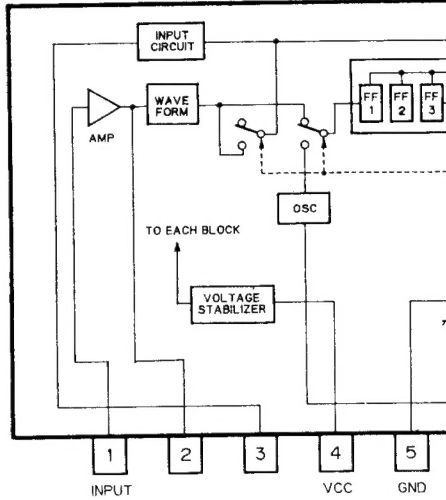
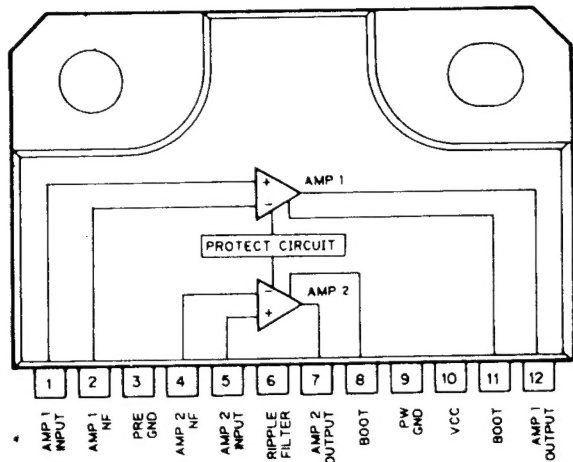
• ICs

LA3161P



PAC001A





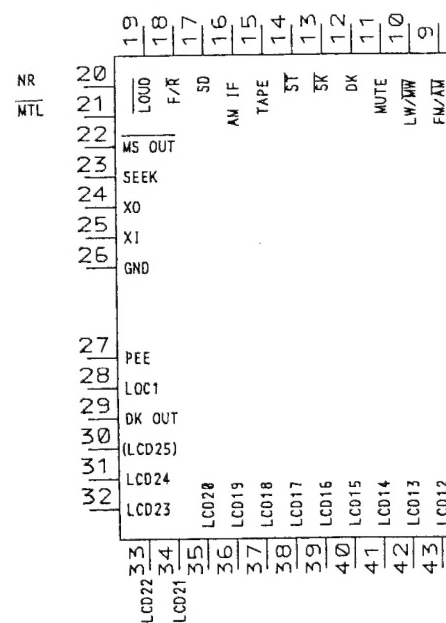
• Pin Function (PD4275)

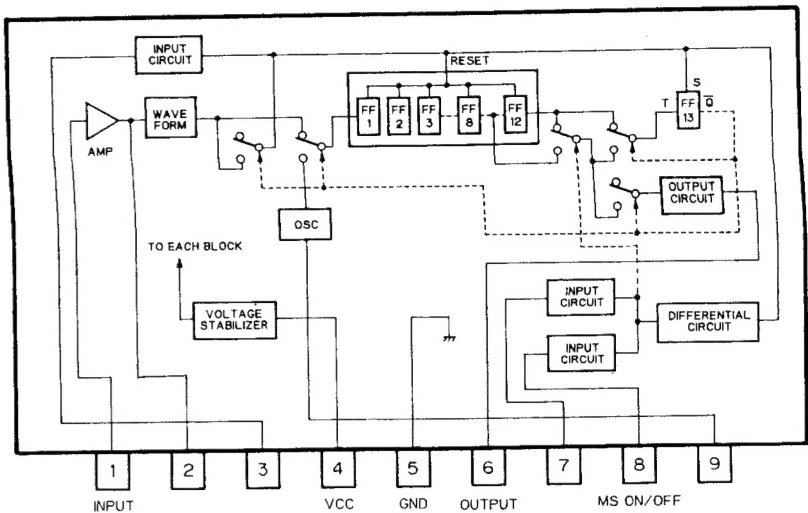
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC		C	Not used
2	EO1	Output	C(3)	PLL error output pins
3	EO2			
4	VDD1			Device power supply pin
8	VDD2			
5	AMVCO	Input		AM local oscillator signal input pin
6	FMVCO	Input		FM local oscillator signal input pin
7	CE	Input		Chip enable input pin
9	FM/AM	Output	C	FM/AM band select pin "H":FM "L":AM
10	LW/MW	Output	C	Loop filter switching output pin "H":LW
11	MUTE	Output	C	Mute output pin "H":ON
12	DK	INPUT		SK signal input pin
13	SK	INPUT		DK signal input pin
14	ST	Input		Stereo broadcast detection signal input pin "L":Stereo indicator is displayed
15	TAPE	INPUT		Tape power ON/OFF input pin "H":ON
16	AMIF	Input		AM IF signal input pin
17	SD	Input		FM SD input "H":During broadcast reception
18	F/R	Input		Tape motion signal input pin "H":Forward
19	LOUD	Input		Loudness ON/OFF signal input pin "L":ON
20	NR	Output	C	Dolby NR ON/OFF output pin "H":ON
21	MTL	Output	C	Tape METAL ON/OFF output pin "L":ON
22	MSOUT	Output	C	Tape MS ON/OFF output pin "L":ON
23	SEEK	Output	C	"H" level:SEEK, BSM, BSA and PSCAN
24	XO	Output	C	Quartz oscillator terminal
25	XI	Input		
26	GND			GND terminal
27	PEE	Output	C	Alarm output pin
28	LOC1	Output	C	Halt sensitivity switching pin
29	DKOUT	Output	C	Control by DK(terminal #12) input signal "H":DK input signal is detected as 125Hz
30	NC			Not used

Pin No.	Pin Name	I/O	Output Format	Function
31	LCD24	Output	C	Segment s
55	LCD0			
48	KS7	Output	C	Key matrix
55	KS0			
56	COM1	Output	C	Common si
57	COM2			
59	K3	Input		Key matrix
62	K0			
63	SL	Input		AM statio
64	NC		C	Not used

Output format	Meaning
C	C-MOS
C(3)	C-MOS(3 State)

*PD4275



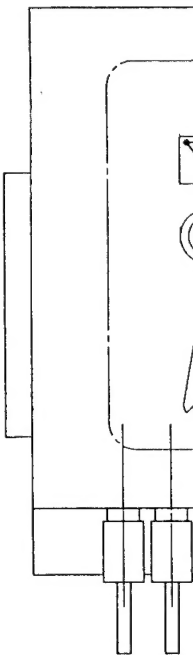


and Operation
pins
ply pin
tor signal input pin
tor signal input pin
t pin
t pin "H":FM "L":AM
ching output pin "H":LW
"H":ON
pin
pin
t detection signal input pin icator is displayed
FF input pin "H":ON
out pin
During broadcast reception
nal input pin "H":Forward
signal input pin "L":ON
output pin "H":ON
FF output pin "L":ON
output pin "L":ON
SM, BSA and PSCAN
or terminal
n
y switching pin
CAN) "H":LOC SEEK
terminal #12) input signal nal is detected as 125Hz

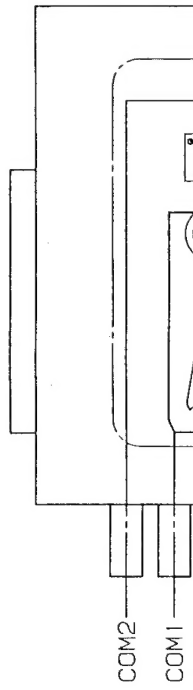
Pin No.	Pin Name	I/O	Output Format	Function and Operation
31 | 55	LCD24 | LCD0	Output	C	Segment signal output pins to LCD
48 | 55	KS7 | KS0	Output	C	Key matrix strobe output pins
56 57	COM1 COM2	Output	C	Common signal output pins to LCD
59 | 62	K3 | K0	Input		Key matrix return input pins
63	SL	Input		AM station level analog input pin
64	NC		C	Not used

Output format	Meaning
C	C-MOS
C(3)	C-MOS(3 State)

• LCD (CAW1 SEGMENT

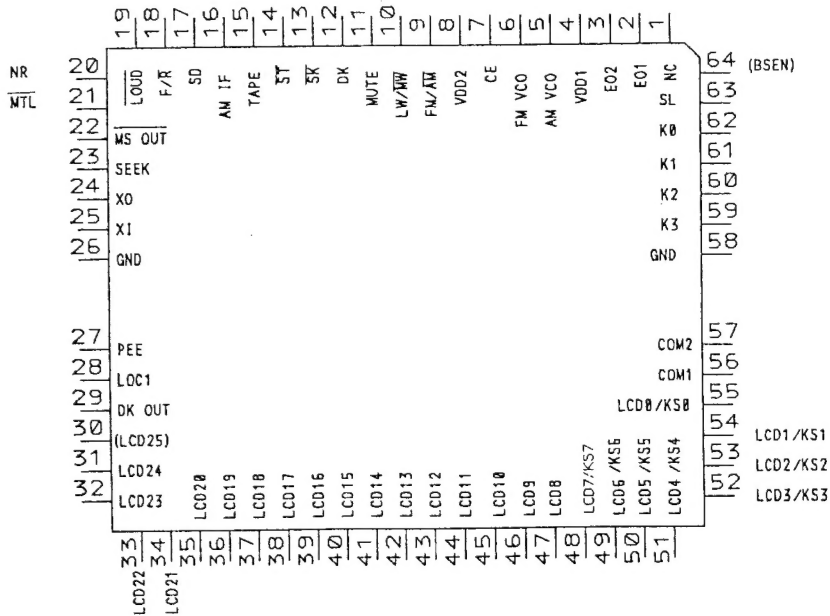


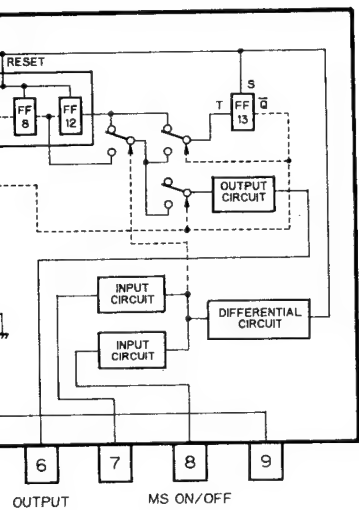
COMMON



*PD4275

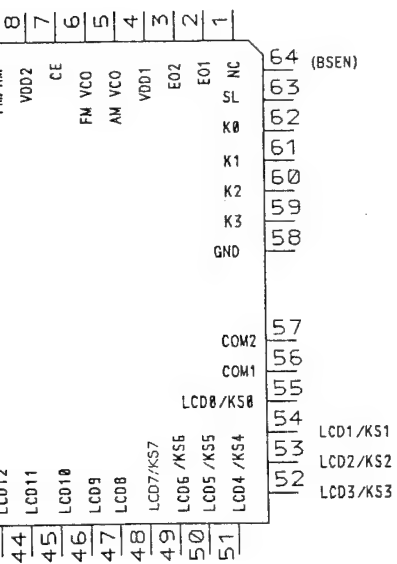
IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.



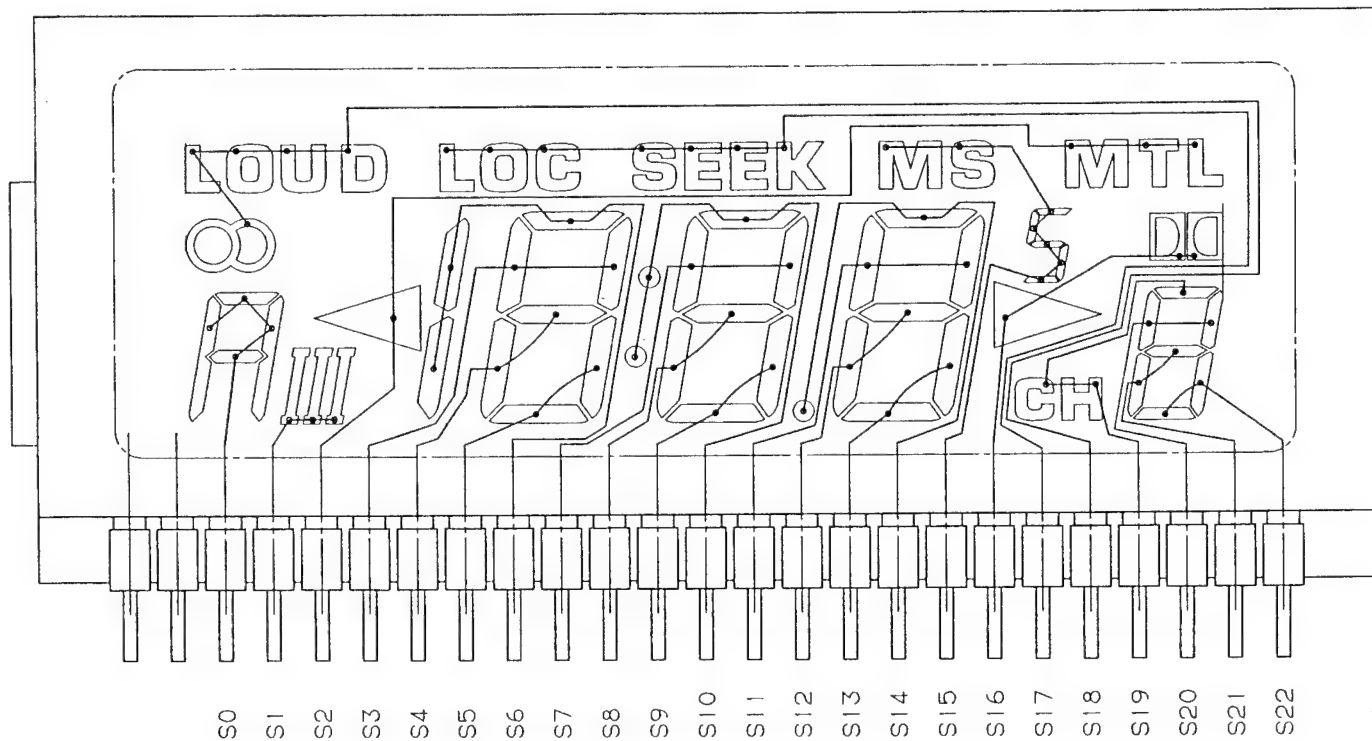


ction and Operation
ignal output pins to LCD
x strobe output pins
ignal output pins to LCD
x return input pins
n level analog input pin

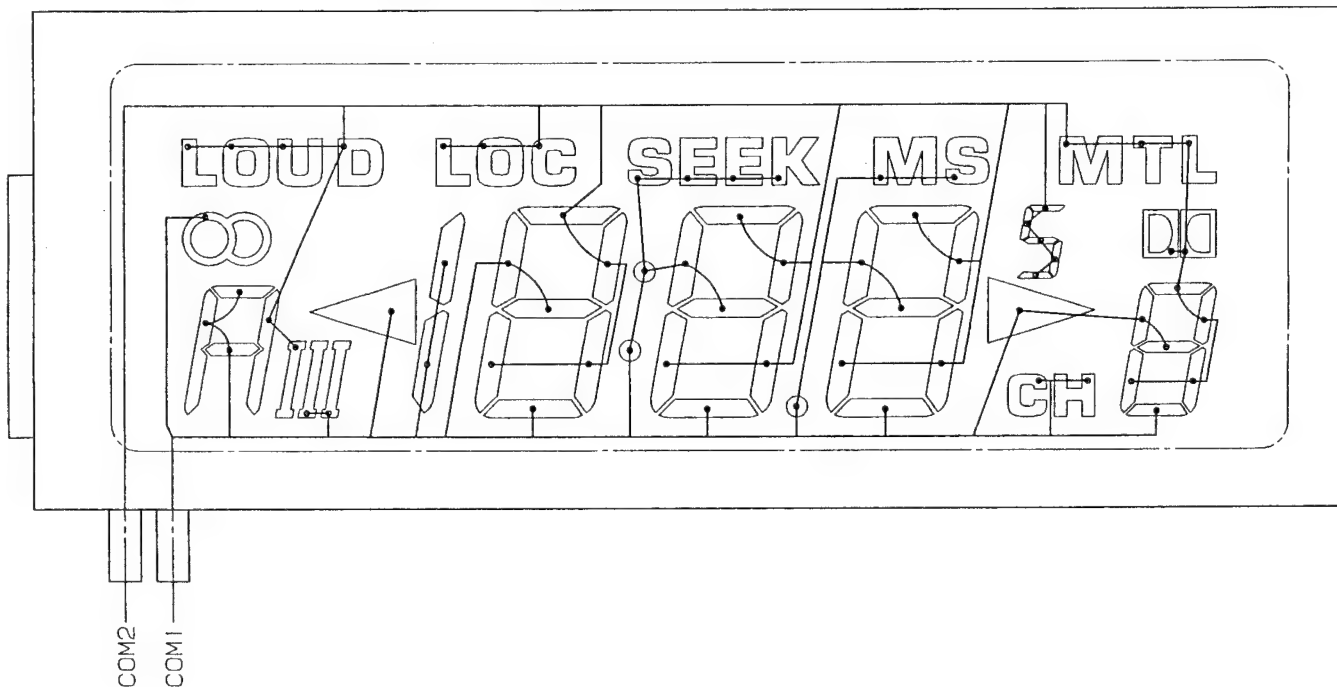
IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.



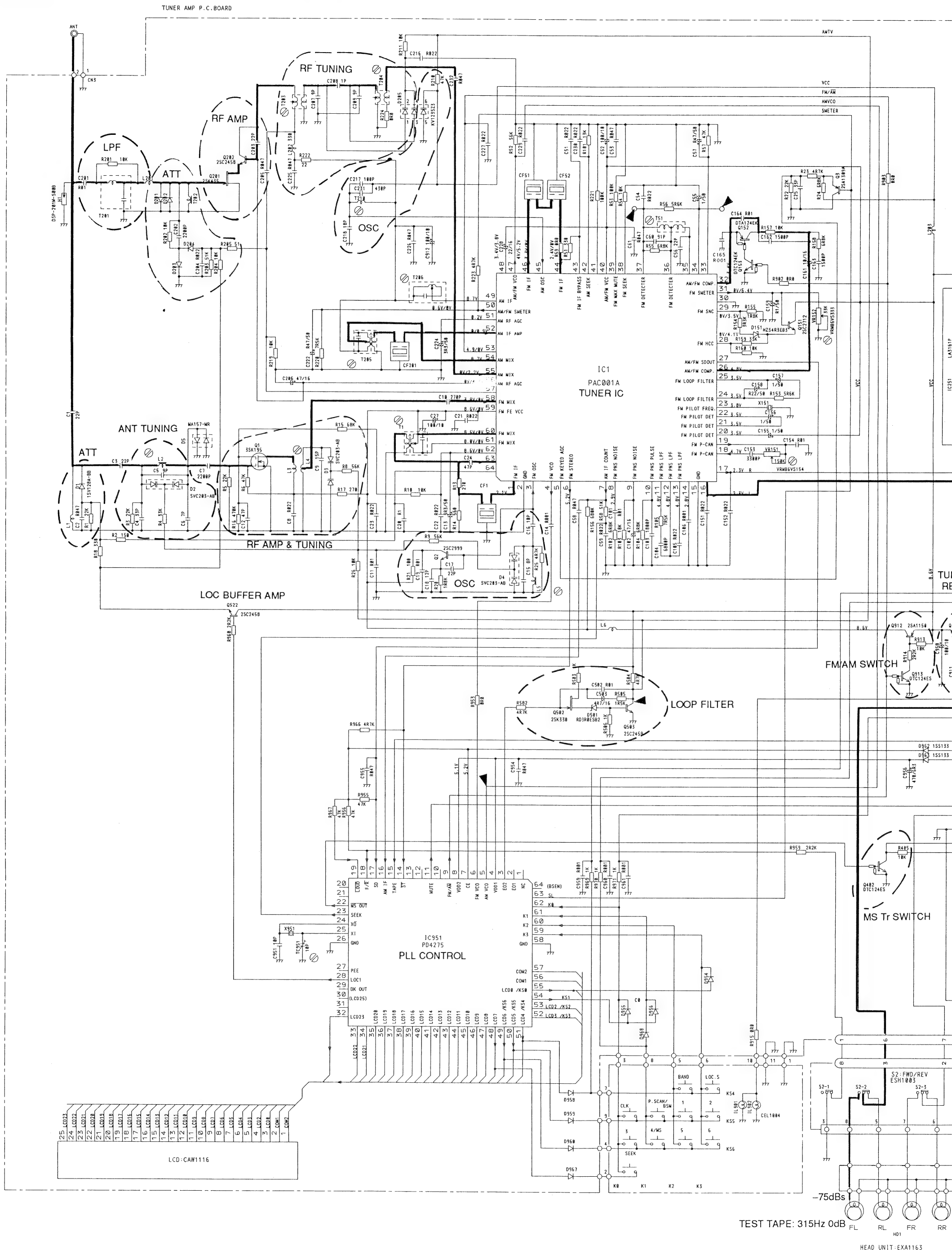
• LCD (CAW1116)
SEGMENT

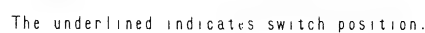


COMMON



6. SCHEMATIC CIRCUIT DIAGRAM (KE-250)





NOTE:

□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

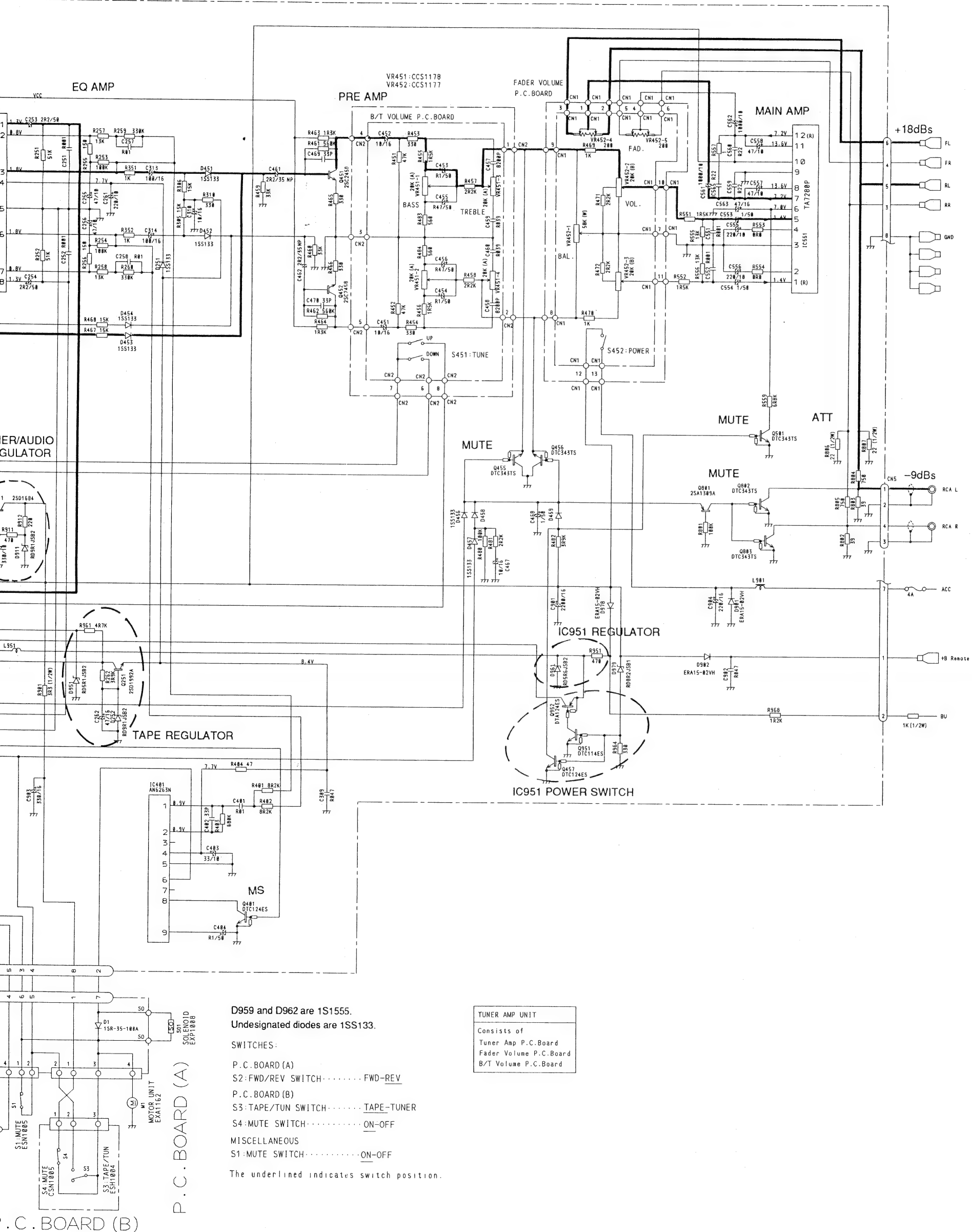


Fig. 7

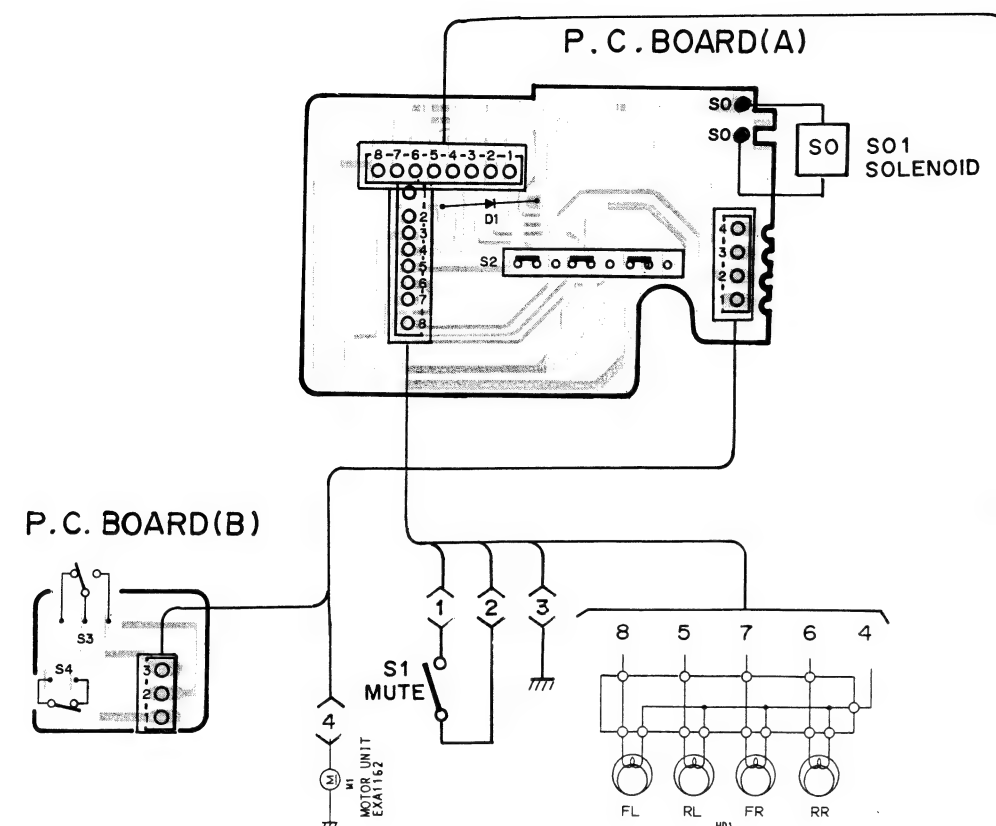
7. CONNECTION DIAGRAM (KE-250)

A

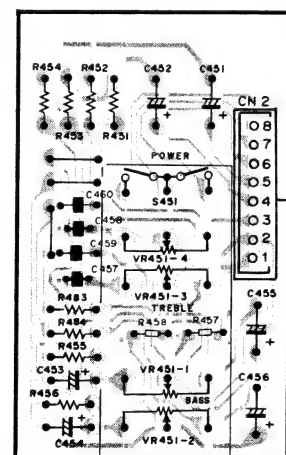
B

C

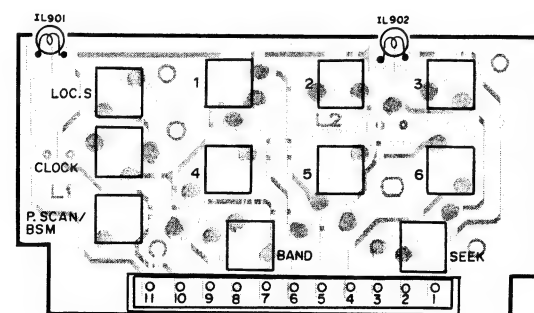
D



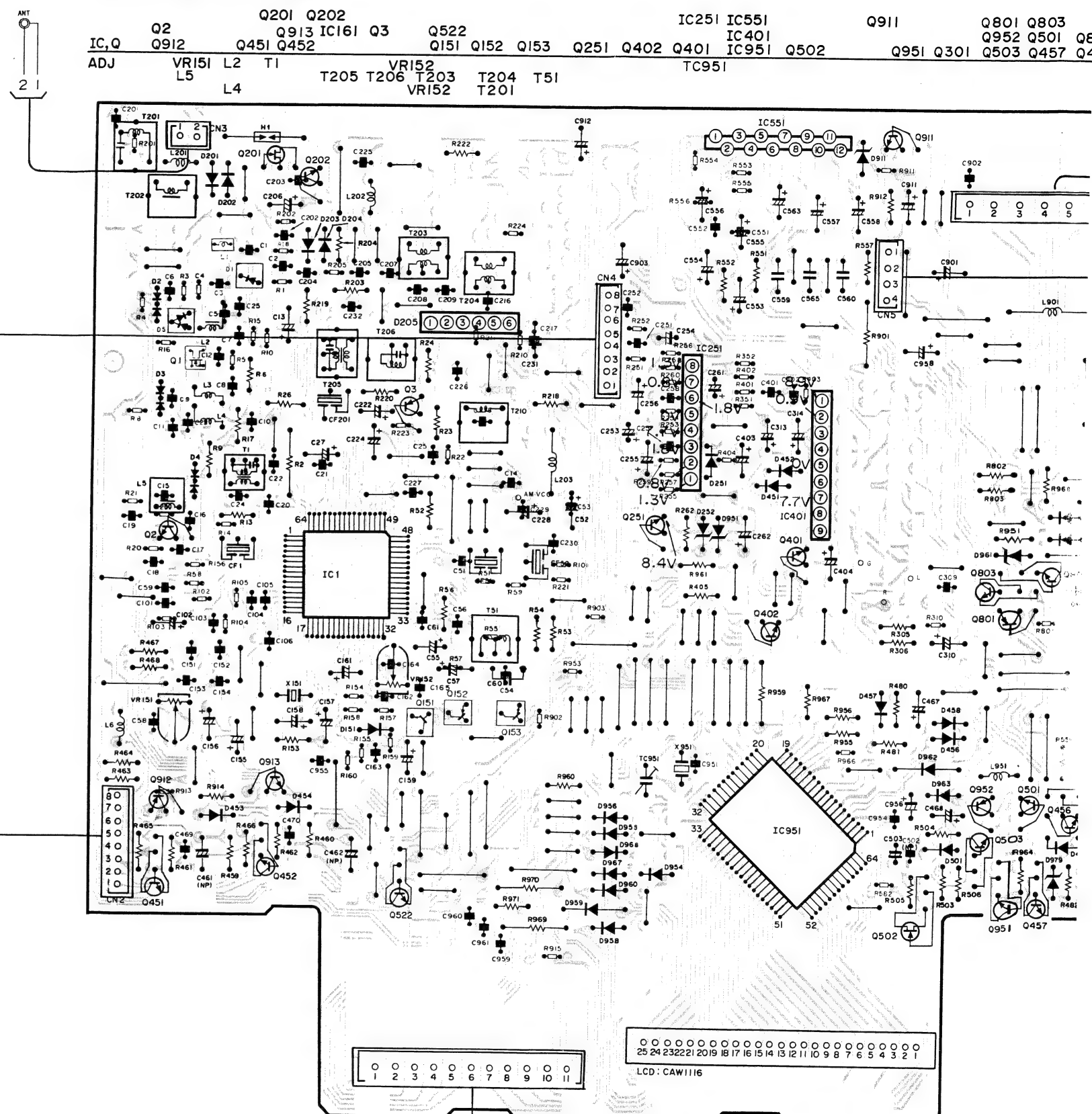
B/T VOLUME P.C. BOARD



KEY BOARD UNIT

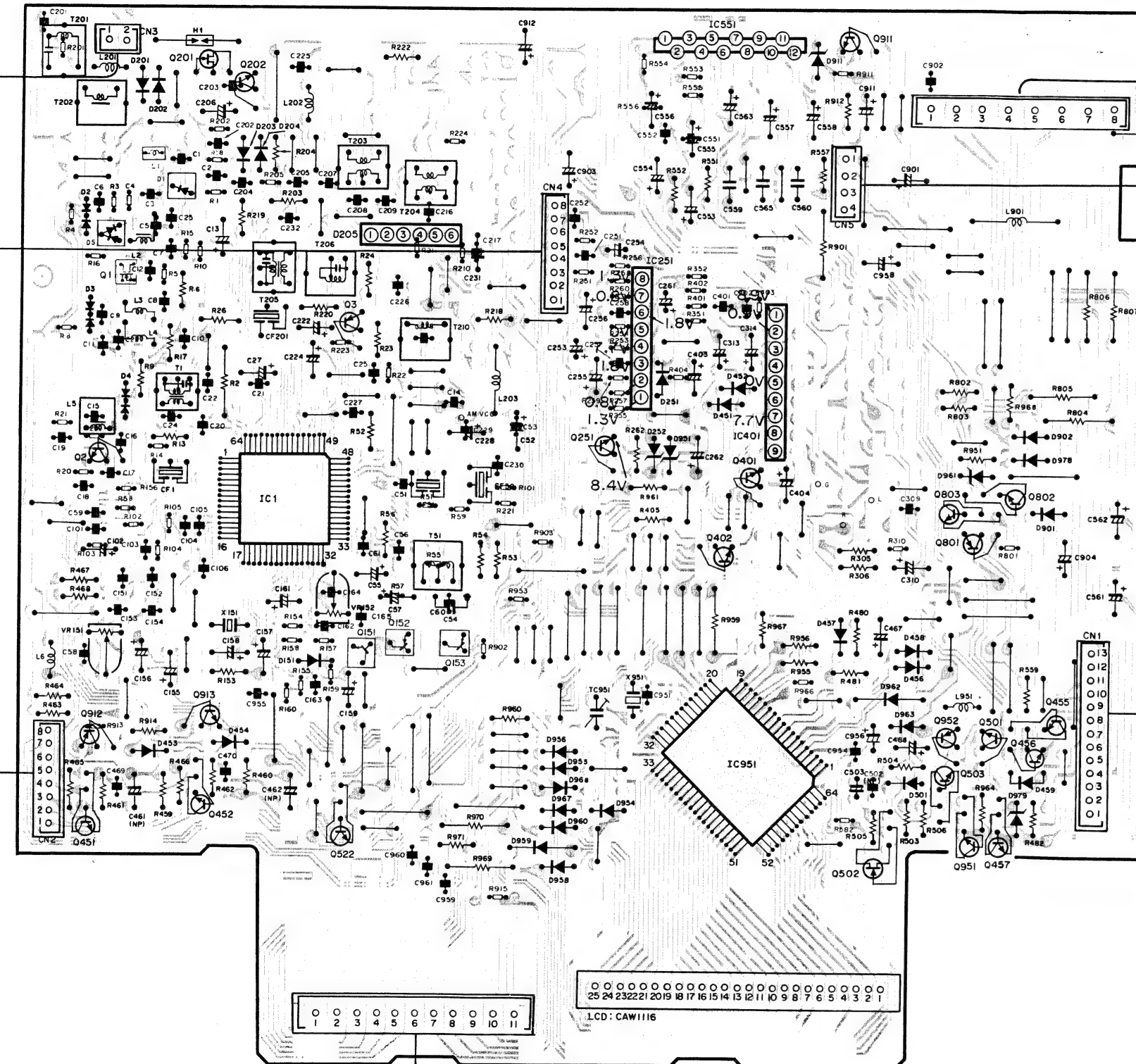


TUNER AMP P.C. BOARD



TUNER AMP P.C. BOARD

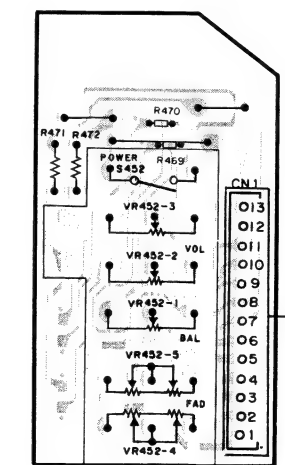
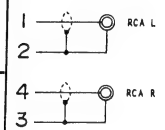
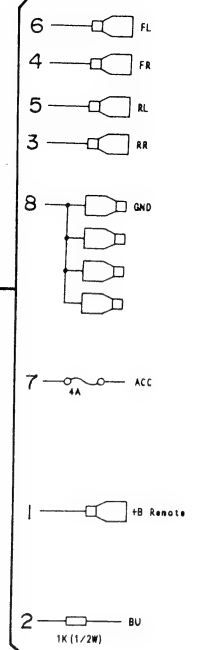
IC, Q Q2 Q201 Q202 Q913 IC161 Q3 Q522 IC251 IC551 Q911 Q801 Q803
 ADJ Q912 Q451 Q452 T1 T205 T206 T203 T204 T51 TC951 Q951 Q301 Q503 Q457 Q455 Q456
 VR151 L2 L4 L5 T201 VR152 T201



TUNER AMP P.C. BOARD

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC551	1.4	0	0	1.4	7.0	7.2	13.6	0	13.6	7.2						
IC1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	2.1	0	2.5	2.5	5.2	2.9	4.8	4.8	4.8	2.8	0	2.3	2.3	4.7	3.5	3.5
	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
	3.8	3.5	3.5	4.8	0.3	0	0.4	3.4	0	0	0	0	0	0	0	0
	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6

(V)



FADER VOLUME P.C. BOARD

Fig. 8

6

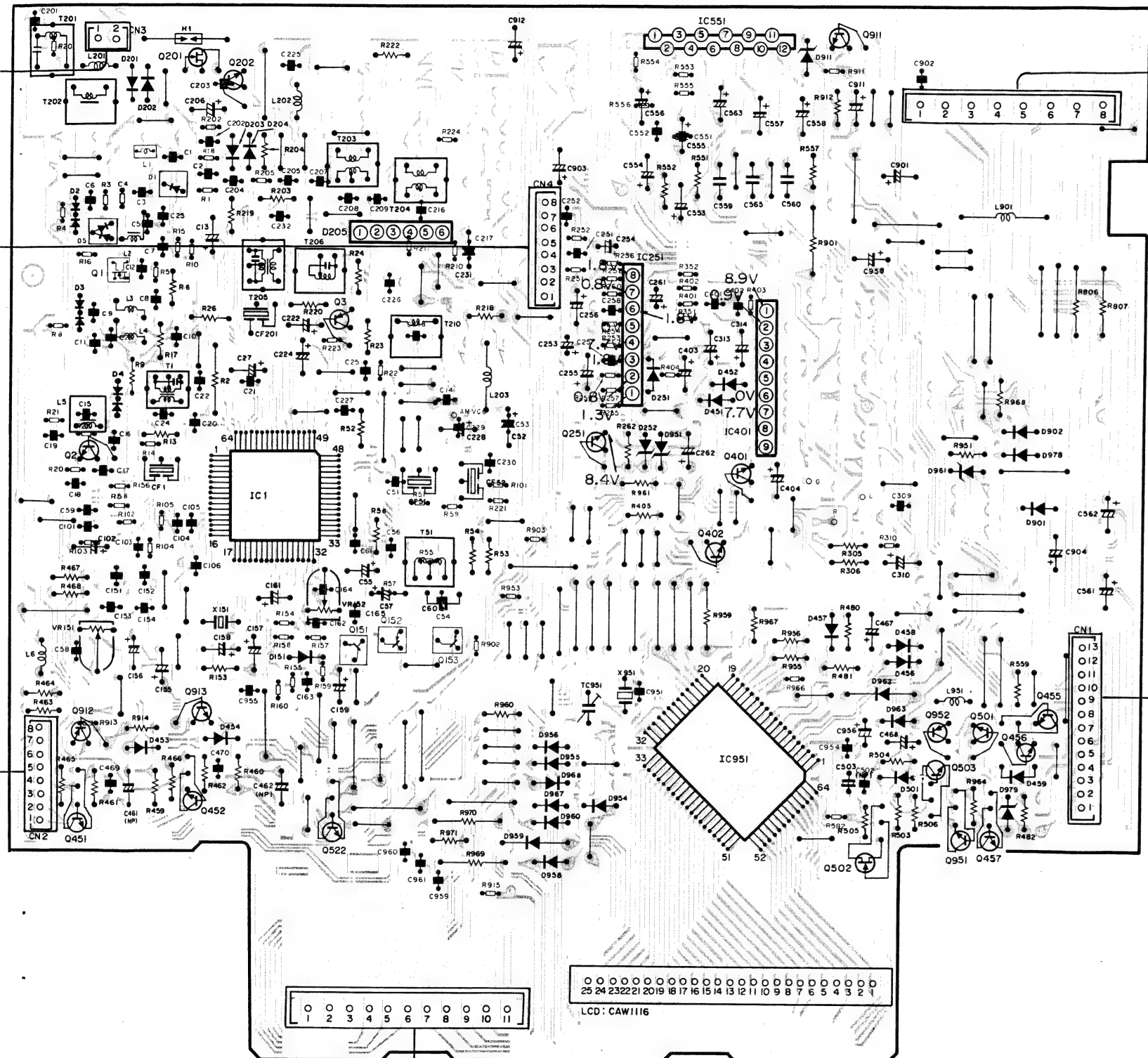
TUNER AMP P.C. BOARD

IC,Q Q2 Q912 Q913 IC161 Q3 Q522 Q151 Q152 Q153 Q251 Q402 Q401 IC951 Q502 Q951 Q952 Q501 Q503 Q457 Q455 Q456

ADJ VR151 L2 T1 L5 L4 T205 T206 T203 T204 T51

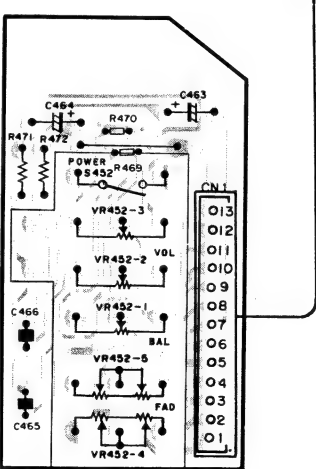
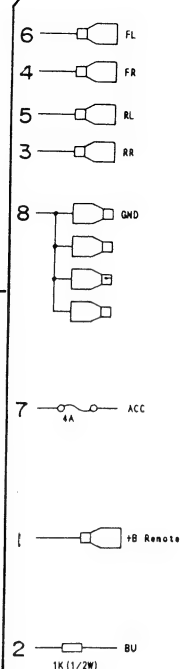
Q201 Q202 Q911 IC251 IC551 IC401 TC951

VR152 T205 T206 T203 T204 T51



TUNER AMP P.C. BOARD

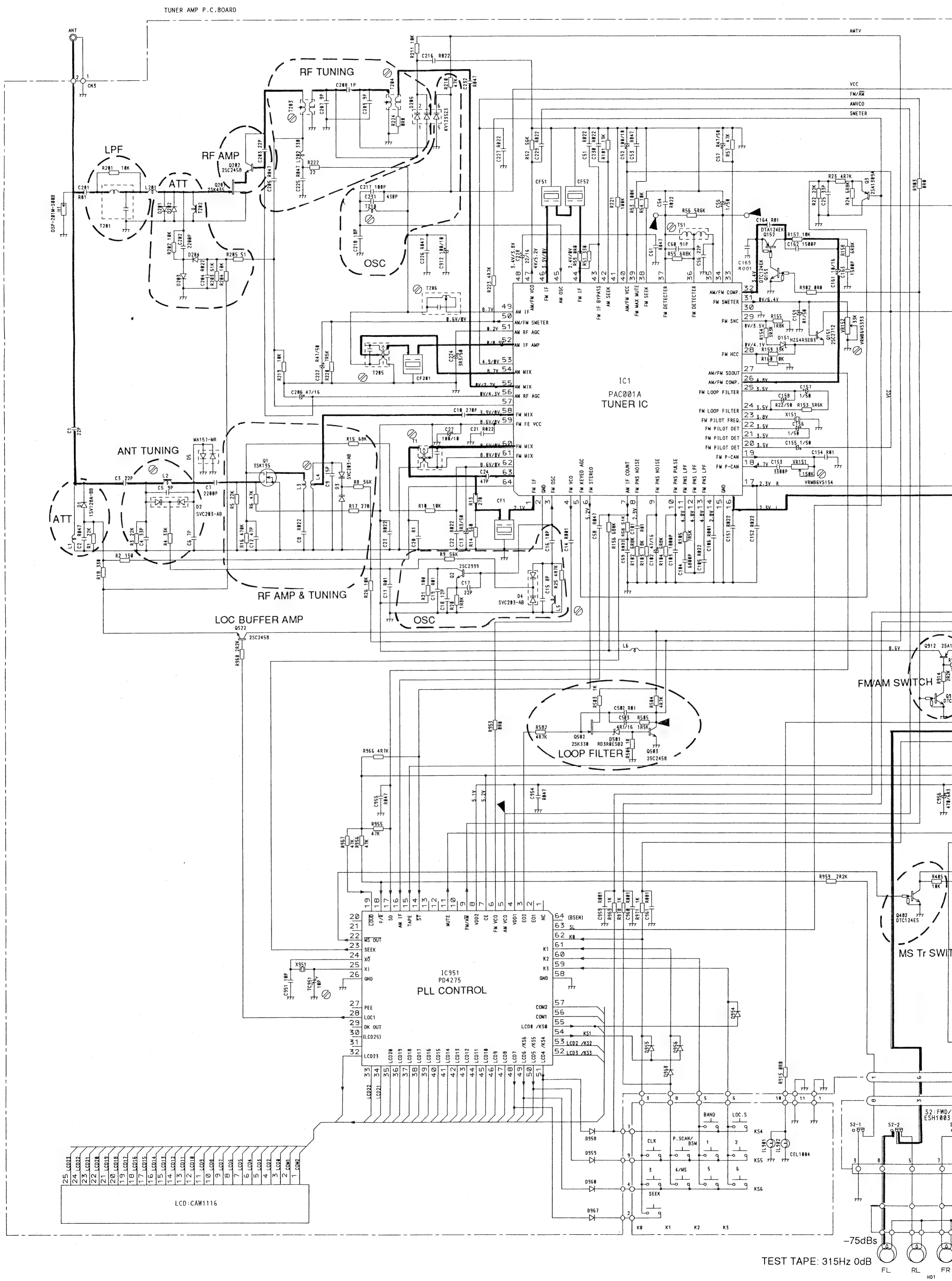
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC551	1.4	0	0	1.4	7.0	7.2	13.6	0	13.6	7.2	0	0	0	0	0	0
IC1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	2.1	0	0	0	5.2	2.9	0	0	0	0	0	0	0	0	0	0
	2.3	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
	3.8	3.5	3.5	4.8	0	0	0	0	0	0	0	0	0	0	0	0
	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0



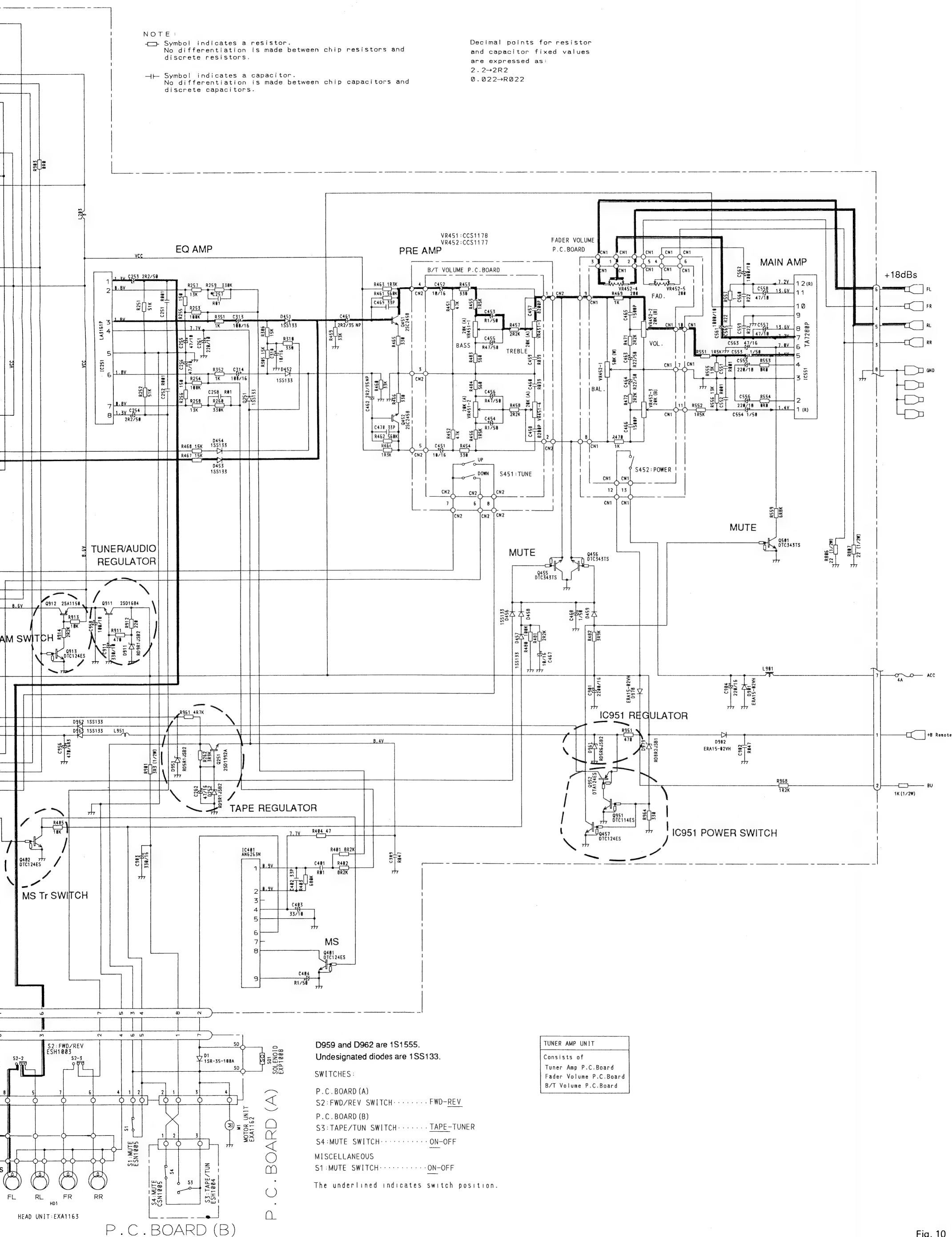
FADER VOLUME P.C. BOARD

Fig. 9

9. SCHEMATIC CIRCUIT DIAGRAM (KE-3033)



HEAD UNIT:EXA116



NOTE :
□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
—|— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

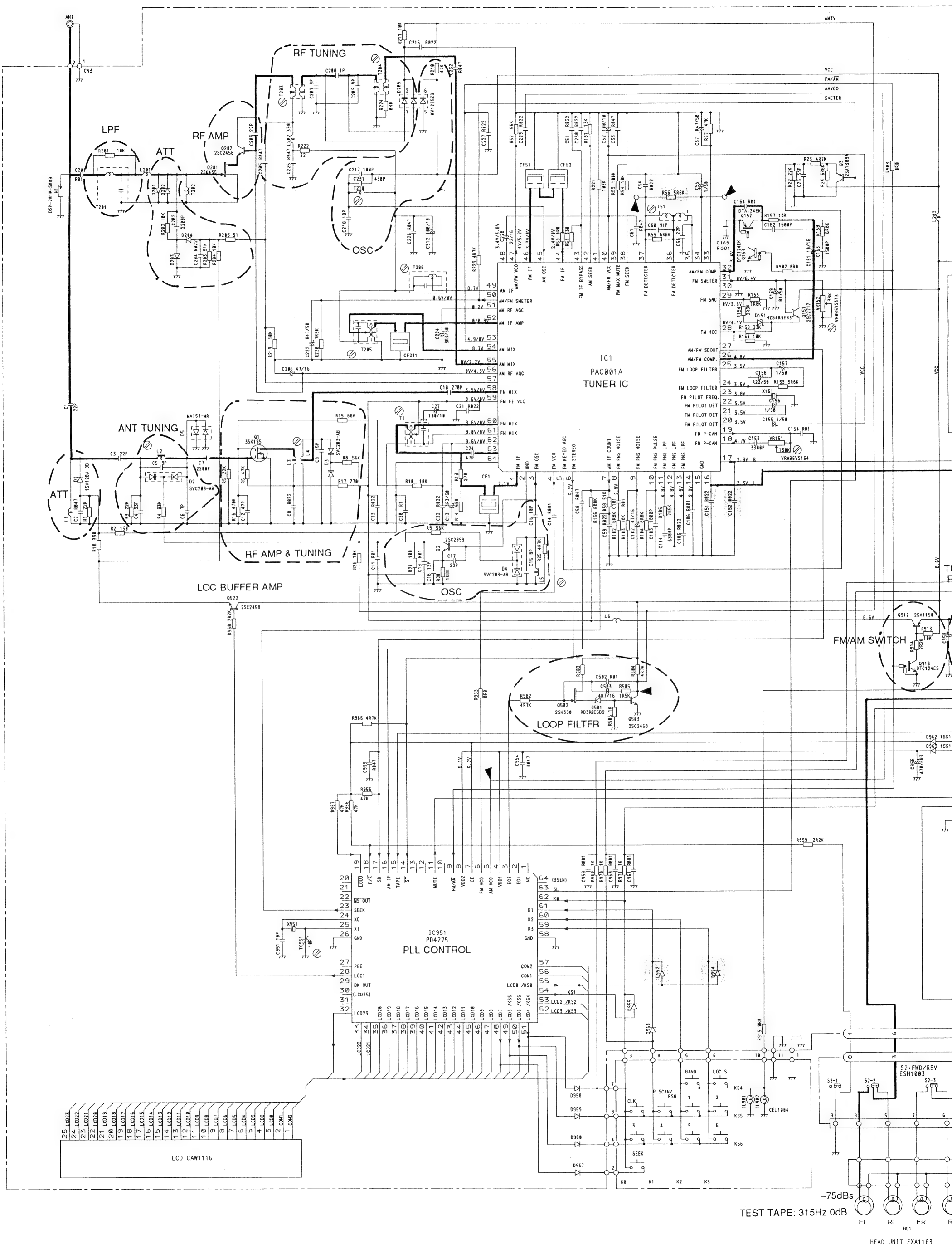
TUNER AMP UNIT
Consists of
Tuner Amp P.C.Board
Fader Volume P.C.Board
B/T Volume P.C.Board

- D959 and D962 are 1S1555.
Undesignated diodes are 1SS133.
- SWITCHES:
P.C. BOARD (A)
S2:FWD/REV SWITCH.....FWD-REV
P.C. BOARD (B)
S3:TAPE/TUN SWITCH.....TAPE-TUNER
S4:MUTE SWITCH.....ON-OFF
- MISCELLANEOUS
S1:MUTE SWITCH.....ON-OFF
- The underlined indicates switch position.

Fig. 10

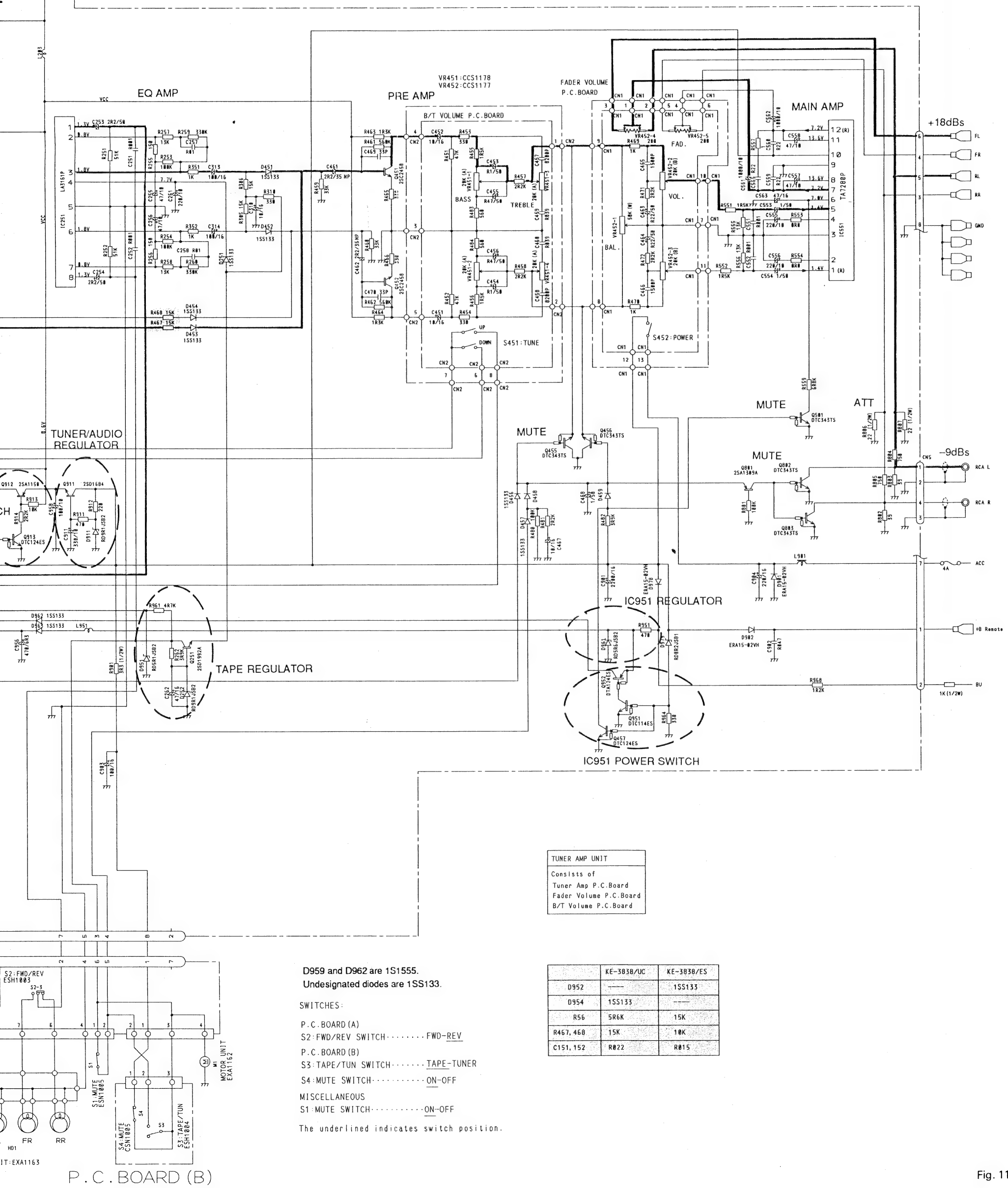
10. SCHEMATIC CIRCUIT DIAGRAM (KE-3838)

TUNER AMP P.C. BOARD



NOTE:
□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
—|— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



TUNER AMP UNIT
Consists of
Tuner Amp P.C. Board
Fader Volume P.C. Board
B/T Volume P.C. Board

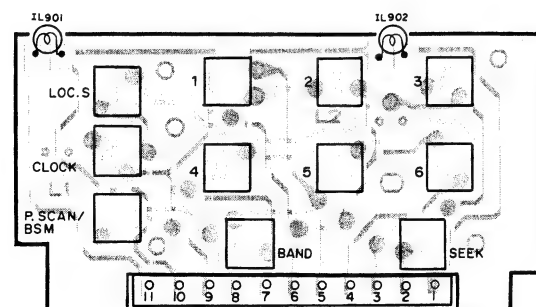
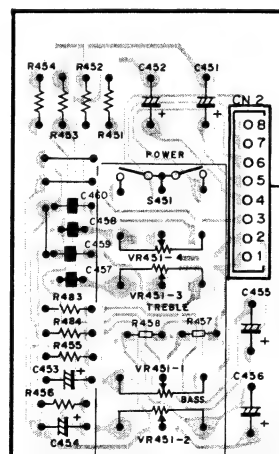
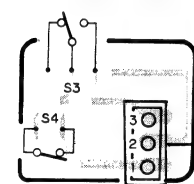
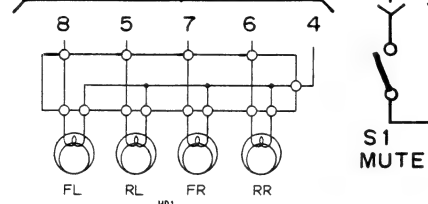
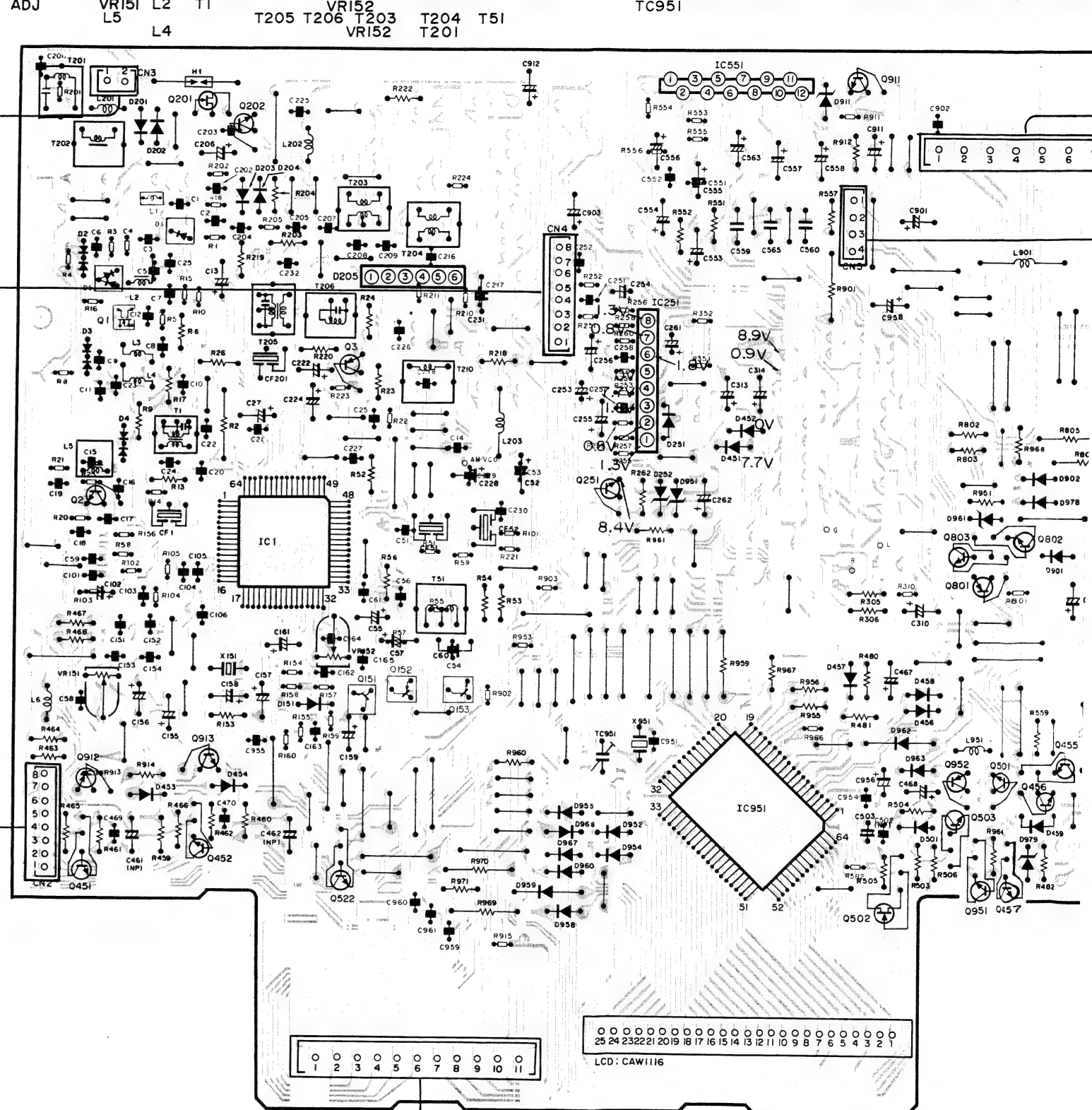
D959 and D962 are 1S1555.
Undesignated diodes are 1S1533.

SWITCHES:
P.C. BOARD (A)
S2: FWD/REV SWITCH..... FWD-REV
P.C. BOARD (B)
S3: TAPE/TUN SWITCH..... TAPE-TUNER
S4: MUTE SWITCH..... ON-OFF
MISCELLANEOUS
S1: MUTE SWITCH..... ON-OFF
The underlined indicates switch position.

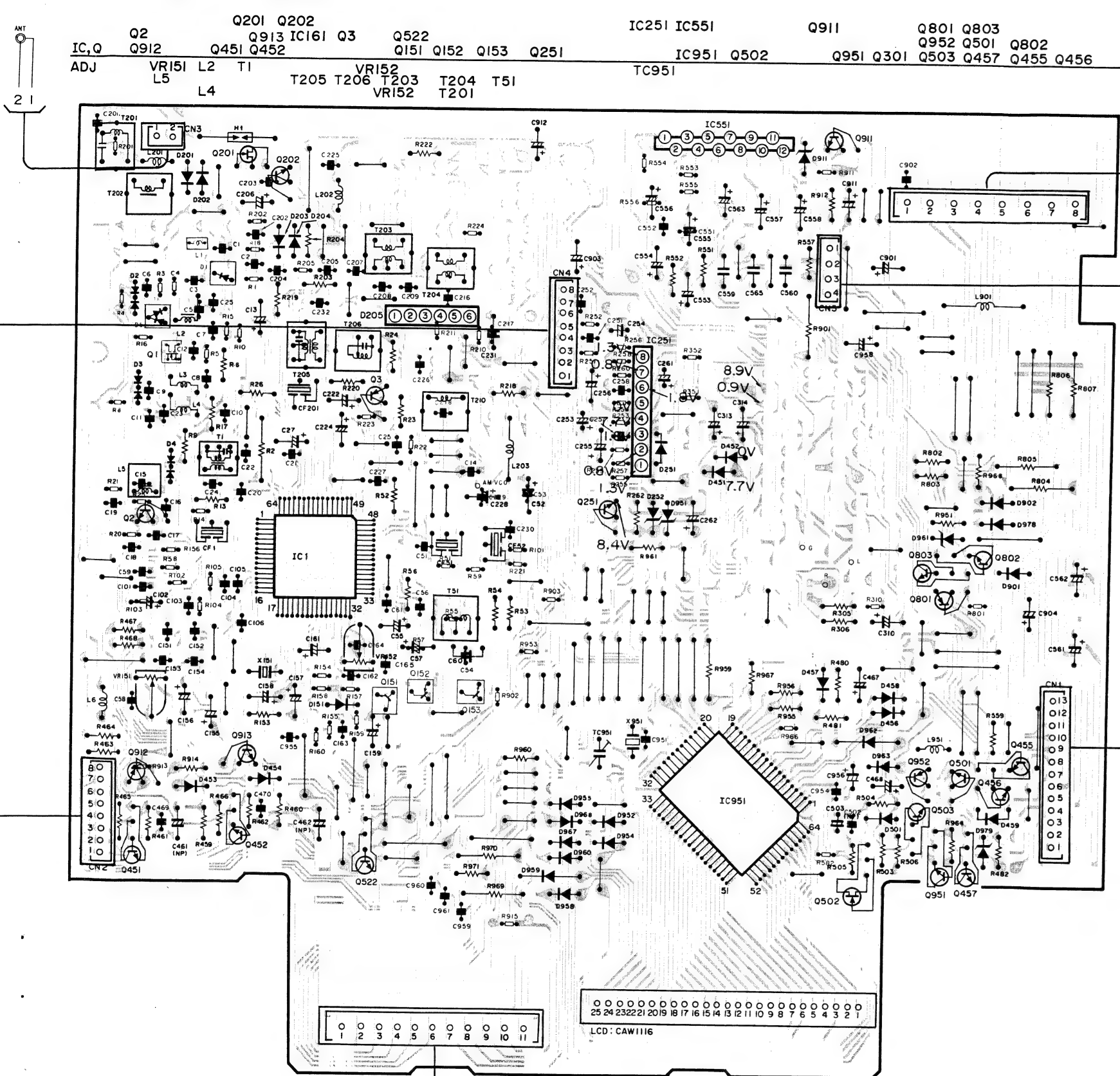
	KE-3830/UC	KE-3830/ES
D952	—	1S1533
D954	1S1533	—
R56	5R6K	15K
R467, 468	15K	10K
C151, 152	R022	R015

Fig. 11

6



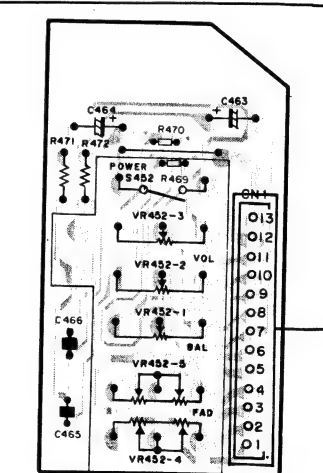
TUNER AMP P.C. BOARD



TUNER AMP P.C. BOARD

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC551	1.4	0	1.4	7.0	7.2	13.6	0	13.6	7.2							
IC1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	2.1	0	2.1	0	2.1	0	2.1	0	2.1	0	2.1	0	2.1	0	2.1	0
	2.3	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
	3.8	3.5	3.5	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0

(V)



FADER VOLUME P.C. BOARD

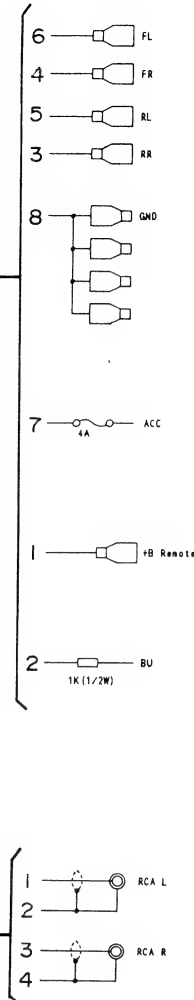
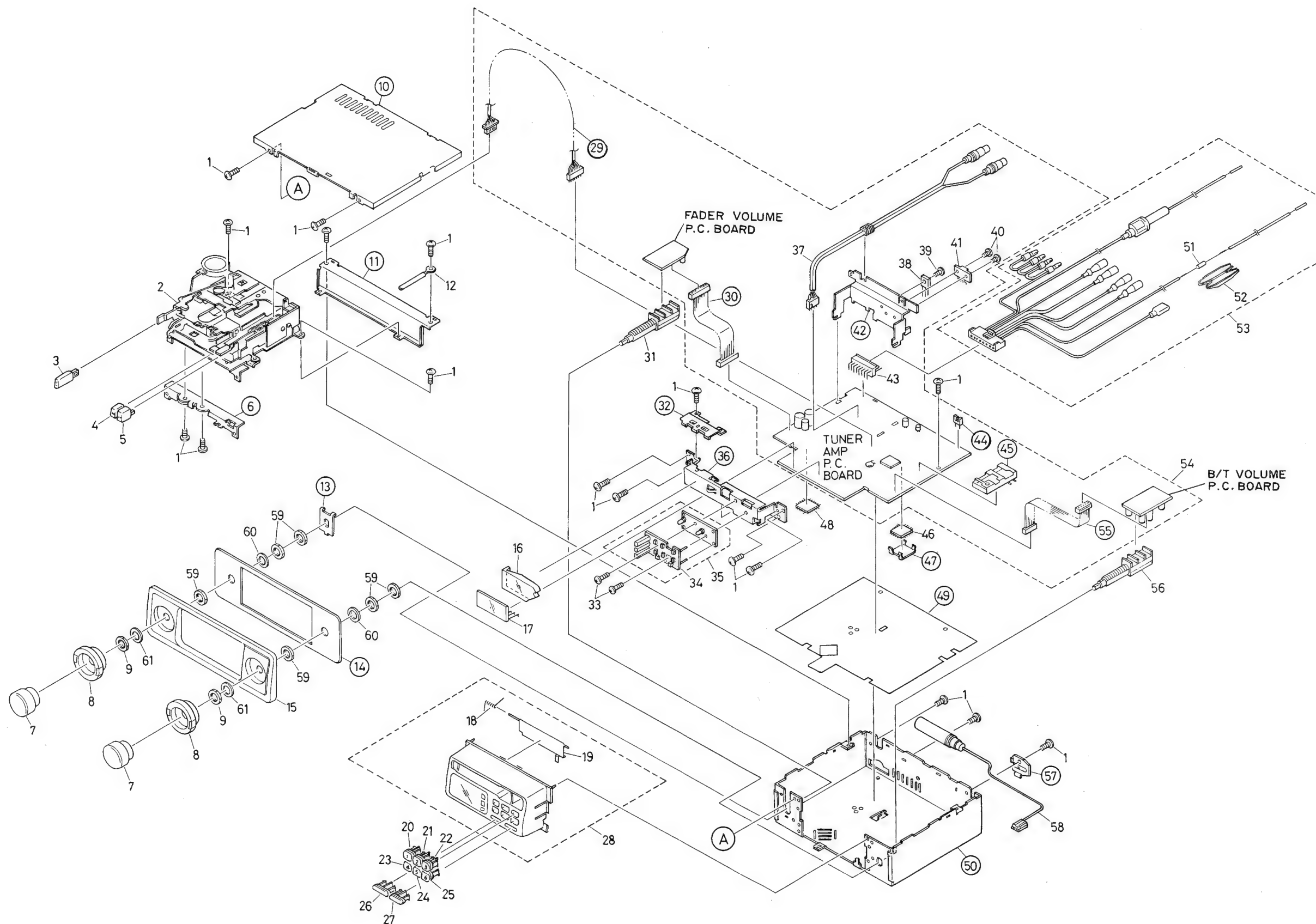


Fig. 12

12. CHASSIS EXPLODED VIEW



NOTE:
 • Parts who
 • Parts mar
 longer the

• Parts Lis

Mark No. D

1	S
2	C
A	C
A	A
3	B
4	B
5	B
6	B
7	K
8	K
9	N
10	C
11	B
12	C
13	H
14	P
15	P
16	L
17	L
18	S
19	D
20	B
21	B
22	B
23	B
24	B
25	B
26	B
27	B
28	G
29	C
30	C
31	V
32	B
33	S
34	R
35	K
	K

Fig. 13

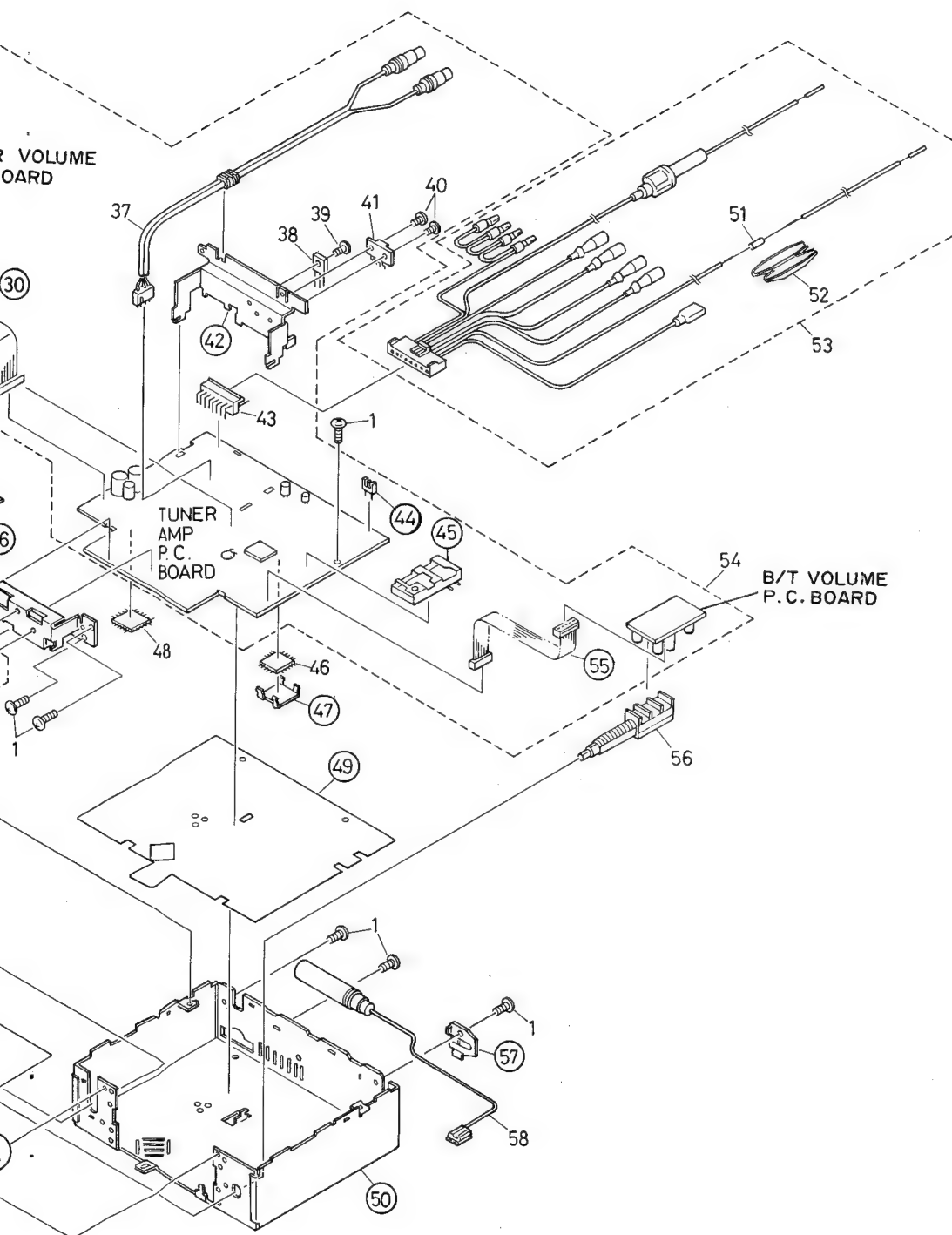


Fig. 13

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

• Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ26P050FMC	36	Bracket	
● 2	Cassette Mechanism Assy (KE-250, 3033)	EXK1720	37	Connector (KE-250, 3838)	CDE1674
	Cassette Mechanism Assy (KE-3838)	EXK1710	.....	(KE-3033)	
3	Button (EJ)	CAC2669	38	Transistor	2SD1684
4	Button (REW)	CAC2667	39	Screw	BMZ30P080FMC
5	Button (FF)	CAC2666	40	Screw	BMZ30P050FMC
6	Bracket		41	IC	TA7280P
7	Knob	CAA1239	42	Bracket	
			43	Plug	CKS-465
8	Knob	CAA1238	44	Plug	
9	Nut	CBN1001	45	Case	
10	Case		46	IC	PAC001A
11	Bracket		47	Shield	
12	Clamper	CEF-007	48	IC	PD4275
13	Holder		49	Insulator	
14	Plate		50	Chassis	
15	Panel (KE-250)	CNS2206	51	Resistor	RS1/2P102JL
	Panel (KE-3033, 3838)	CNS2208	52	Cap	CNS1472
16	Lens	CNV2602	53	Cord Assy	CDE3010
17	LCD	CAW1116	● 54	Tuner Amp Unit (KE-250)	CWM2515
18	Spring	CBH1396		Tuner Amp Unit (KE-3033/UC)	CWM2516
19	Door (KE-250)	CAT1336		Tuner Amp Unit (KE-3033/XSG)	CWM2564
	Door (KE-3033, 3838)	CAT1361		Tuner Amp Unit (KE-3838/UC)	CWM2513
20	Button (1)	CAC2658		Tuner Amp Unit (KE-3838/ES)	CWM2514
21	Button (2)	CAC2659		Tuner Amp Unit (KE-3838/XSG, XML)	CWM2562
22	Button (3)	CAC2660	55	Connector	
23	Button (4)	CAC2661	56	Volume	CCS1178
24	Button (5)	CAC2662	57	Holder	
25	Button (6)	CAC2663	58	Antenna Cable	CDH1115
26	Button (BAND)	CAC2904	59	Nut	CBN-028
27	Button (SEEK)	CAC2905	60	Washer	CND-646
28	Grille Unit (KE-250)	CXA3873	61	Spacer	CNC1528
	Grille Unit (KE-3033)	CXA3874			
	Grille Unit (KE-3838)	CXA3872			
29	Connector				
30	Connector				
31	Volume	CCS1177			
32	Bracket				
33	Screw	BMZ20P040FMC			
34	Rubber	CNV2601			
● 35	Key Board Unit (US, UC, ES)	CWS1193			
	Key Board Unit (XSG/UC, XML/UC)	CWS1195			

13. CASSETTE MECHANISM ASSY EXPLODED VIEW (KE-250, 3033)

• Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1167	46	Switch	ESH1004
2	Gear Unit	EXA1159	47	Switch	CSN1005
3	Washer	CBF1037	48	Screw	CBA1025
4	Gear	ENV1230	49	Gear	ENV1229
5	Gear	ENV1203	50	Washer	CBF1038
6	Gear	ENV1204	51	Belt	ENT1020
7	Gear	ENV1212	52	Gear	ENV1209
8	Gear	ENV1211	53	Arm Unit	EXA1155
9	Sub Chassis Unit		54	Washer	YE30FUC
10	Arm	ENV1210	55	Spring	EBH1310
11	Screw	BM220P025FMC	56	Flywheel Unit	EXA1161
12	Spring	EBH1304	57	Belt	ENT1018
13	Screw	JFZ220P040FNI	58	Arm	ENV1206
14	Collar	ELA1220	59	Spring	EBH1317
15	Shaft		60	Gear	ENV1205
16	Lever	ENC1202	61	Chassis Unit	
17	Washer	EBF1015	62	Screw	JFZ220P025FNI
18	Gear	ENV1268	63	Bracket	
19	Spring	EBH1313	64	Pulley	ENV1207
20	Spring	EBH1314	65	Solenoid	EXP1008
21	Lever	ENC1208	66	Screw	EBA1023
22	Spring	EBH1307	67	Plug	
23	Tube		68	P.C. Board	
24	Spring	EBH1306	69	Switch	ESH1003
25	.....		70	Washer	WH23FMC
26	Lever	ENC1209	71	Screw	BSZ23P040FMC
27	Spring	EBH1316	72	Screw	CBA1015
28	Arm	ENC1222	73	Head Unit	EXA1163
29	Spring	EBH1308	74	P.C. Board	ENP1042
30	Washer	YE15FUC	75	Switch	ESN1005
31	Arm	ENC1221	76	Washer	YE20FUC
32	Spring	EBH1305	77	Pinch Roller Unit	EXA1154
33	Frame	ENC1204	78	Washer	YE12FUC
34	Arm	ENC1215	79	Roller	ELA1250
35	Shaft	ELA1251	80	Arm Unit	EXA1166
36	Holder	ENC1205	81	Screw	CBA1038
37	Spring	EBH1344	82	Arm	ENV1227
38	Lever	ENV1222	83	Spring	EBH1312
39	Head Base Unit	EXA1152	84	Arm	ENC1212
40	Tube		85	Spring	EBH1322
41	Spring	EBH1315	86	Lever	ENC1228
42	Motor Unit	EXA1162	87	Spring	EBH1331
43	Screw	PMS26P025FUC	88	Lever	ENC1229
44	Screw	CBA1054	89	Arm Unit	
45	P.C. Board		90	Pinch Roller Unit	EXA1153

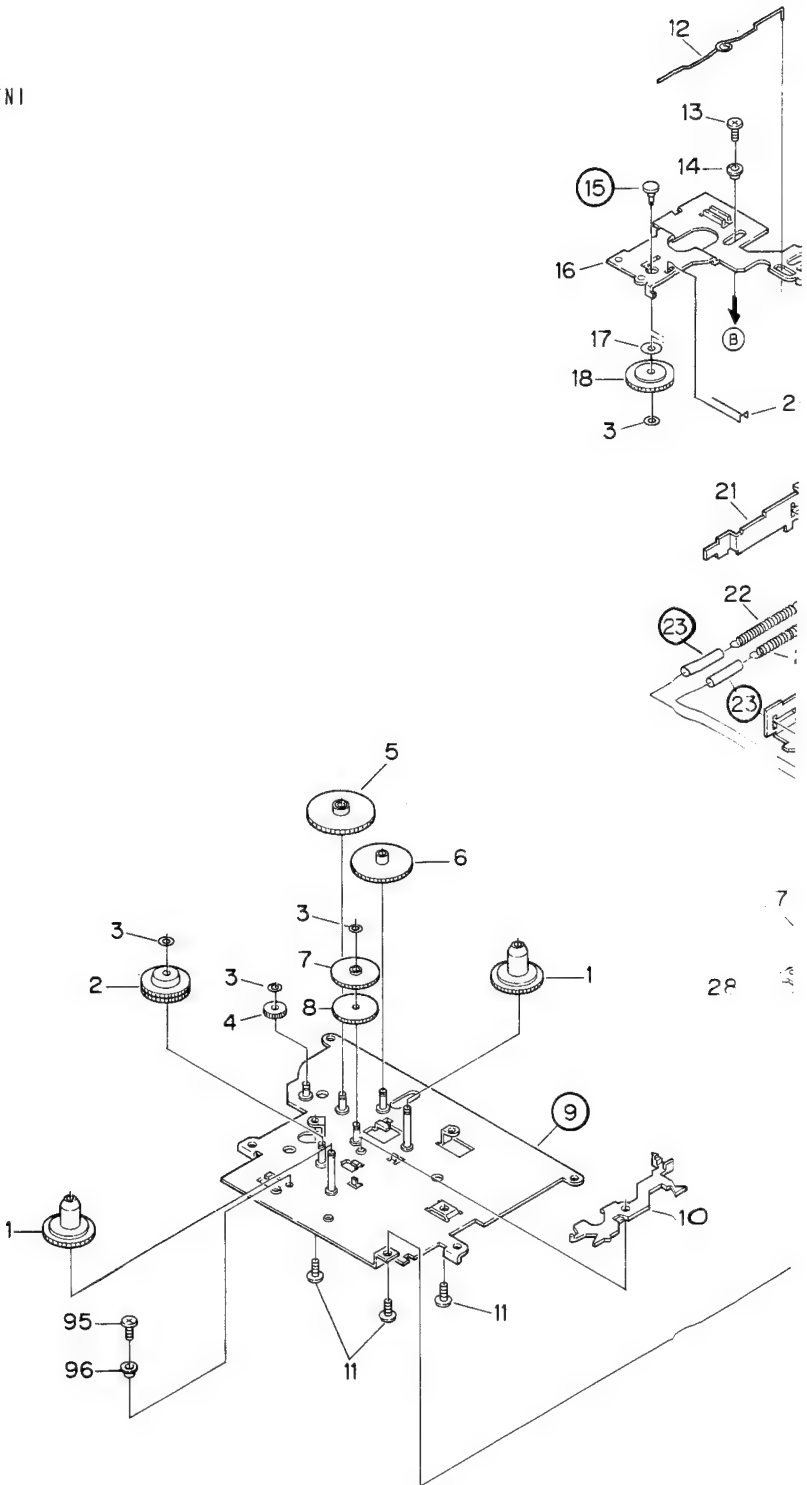
Mark No.	Description	Part No.
91	Spring	EBH1318
92	Arm Unit	EXA1157
93	Spring	EBH1345
94	Collar	ELA1229
95	Screw	JGZ17P035FNI
96	Collar	ELA1252

A

B

C

D



• Cassette Mechanism Assy

50, 3033)

Mark No.	Description	Part No.
91	Spring	EBH1318
92	Arm Unit	EXA1157
93	Spring	EBH1345
94	Collar	ELA1229
95	Screw	JGZ17P035FN1
96	Collar	ELA1252

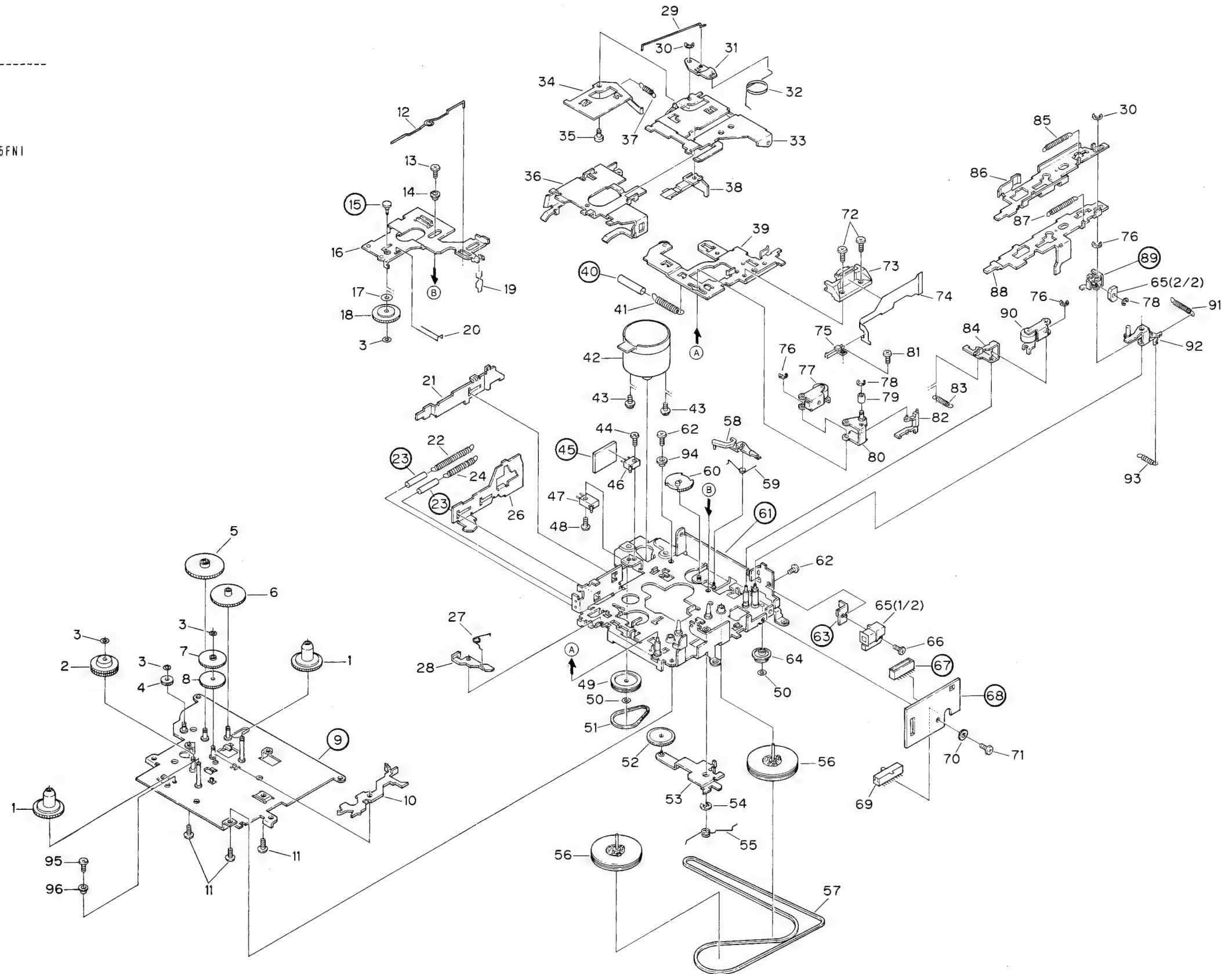


Fig. 14

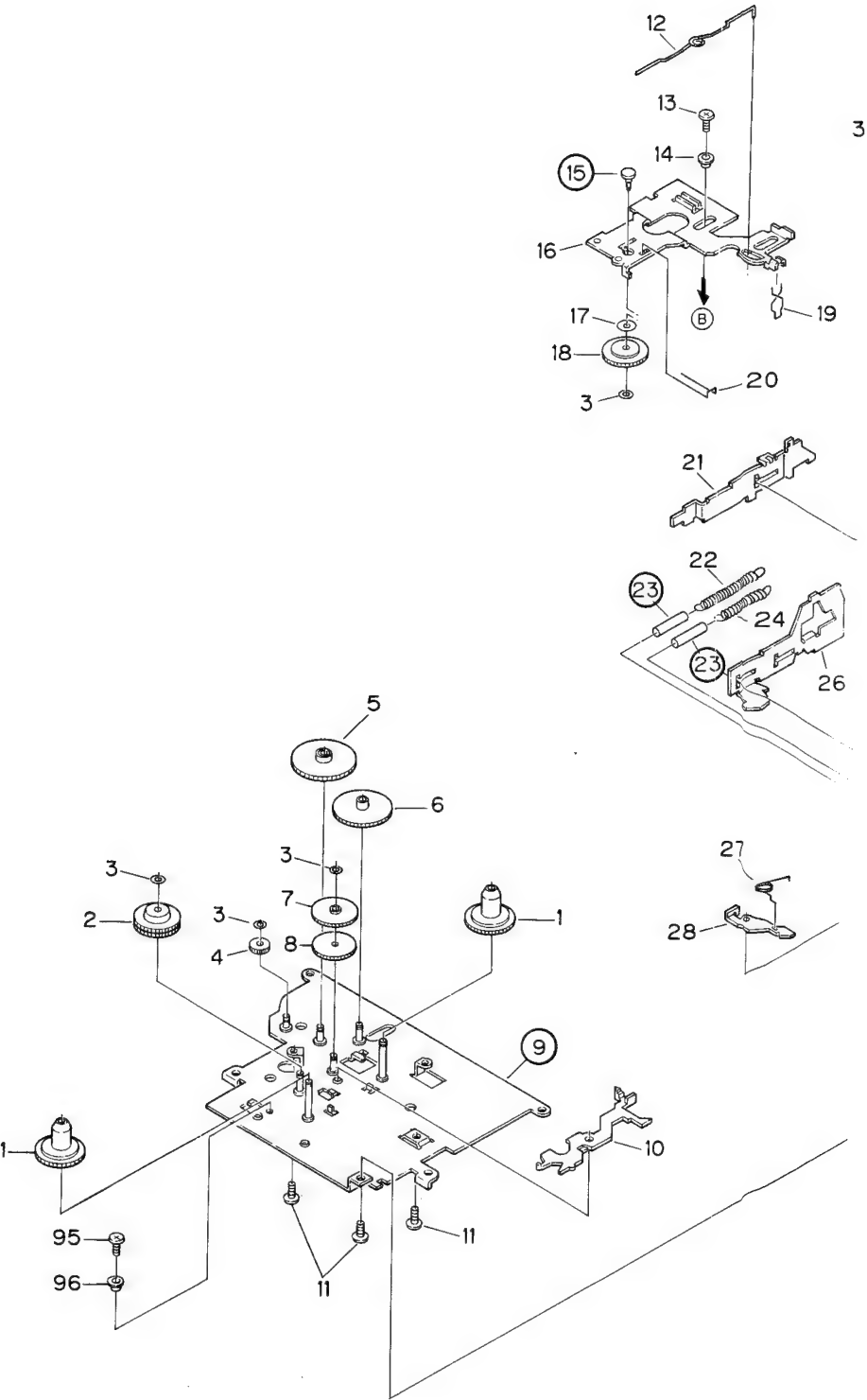
14. CASSETTE MECHANISM ASSY EXPLODED VIEW (KE-3838)

• Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1167	46	Switch	ESH1004
2	Gear Unit	EXA1159	47	Switch	CSN1005
3	Washer	CBF1037	48	Screw	CBA1025
4	Gear	ENV1230	49	Gear	ENV1229
5	Gear	ENV1203	50	Washer	CBF1038
6	Gear	ENV1204	51	Belt	ENT1020
7	Gear	ENV1212	52	Gear	ENV1209
8	Gear	ENV1211	53	Arm Unit	EXA1155
9	Sub Chassis Unit		54	Washer	YE30FUC
10	Arm	ENV1210	55	Spring	EBH1310
11	Screw	BMZ20P025FMC	56	Flywheel Unit	EXA1161
12	Spring	EBH1304	57	Belt	ENT1018
13	Screw	JFZ20P040FNI	58	Arm	ENV1206
14	Collar	ELA1220	59	Spring	EBH1317
15	Shaft		60	Gear	ENV1205
16	Lever	ENC1202	61	Chassis Unit	
17	Washer	EBF1015	62	Screw	JFZ20P025FNI
18	Gear	ENV1268	63	.....
19	Spring	EBH1313	64	Pulley	ENV1207
20	Spring	EBH1314	65	.....
21	Lever	ENC1208	66	.....
22	Spring	EBH1307	67	Plug	
23	Tube		68	P.C. Board	
24	Spring	EBH1306	69	Switch	ESH1003
25	.....		70	Washer	WH23FMC
26	Lever	ENC1209	71	Screw	BSZ23P040FMC
27	Spring	EBH1316	72	Screw	CBA1015
28	Arm	ENC1222	73	Head Unit	EXA1163
29	Spring	EBH1308	74	P.C. Board	ENP1042
30	Washer	YE15FUC	75	Switch	ESH1005
31	Arm	ENC1221	76	Washer	YE20FUC
32	Spring	EBH1305	77	Pinch Roller Unit	EXA1154
33	Frame	ENC1204	78	.....
34	Arm	ENC1215	79	.....
35	Shaft	ELA1251	80	Arm	ENC1213
36	Holder	ENC1205	81	Screw	CBA1038
37	Spring	EBH1344	82	Arm	ENV1227
38	Lever	ENV1222	83	Spring	EBH1312
39	Head Base Unit	EXA1152	84	Arm	ENC1212
40	Tube		85	Spring	EBH1309
41	Spring	EBH1315	86	Lever	ENC1206
42	Motor Unit	EXA1162	87	Spring	EBH1309
43	Screw	PMS26P025FUC	88	Lever	ENC1207
44	Screw	CBA1054	89	.....
45	P.C. Board		90	Pinch Roller Unit	EXA1153

• Cassette Mechanism Assy

Mark No.	Description	Part No.
91	.....
92	Arm	ENC1220
93	Spring	EBH1311
94	Collar	ELA1229
95	Screw	JGZ17P035FNI
96	Collar	ELA1252



• Cassette Mechanism Assy

Mark No.	Description	Part No.
91	.....
92	Arm	ENC1220
93	Spring	EBH1311
94	Collar	ELA1229
95	Screw	JGZ17P035FN1
96	Collar	ELA1252

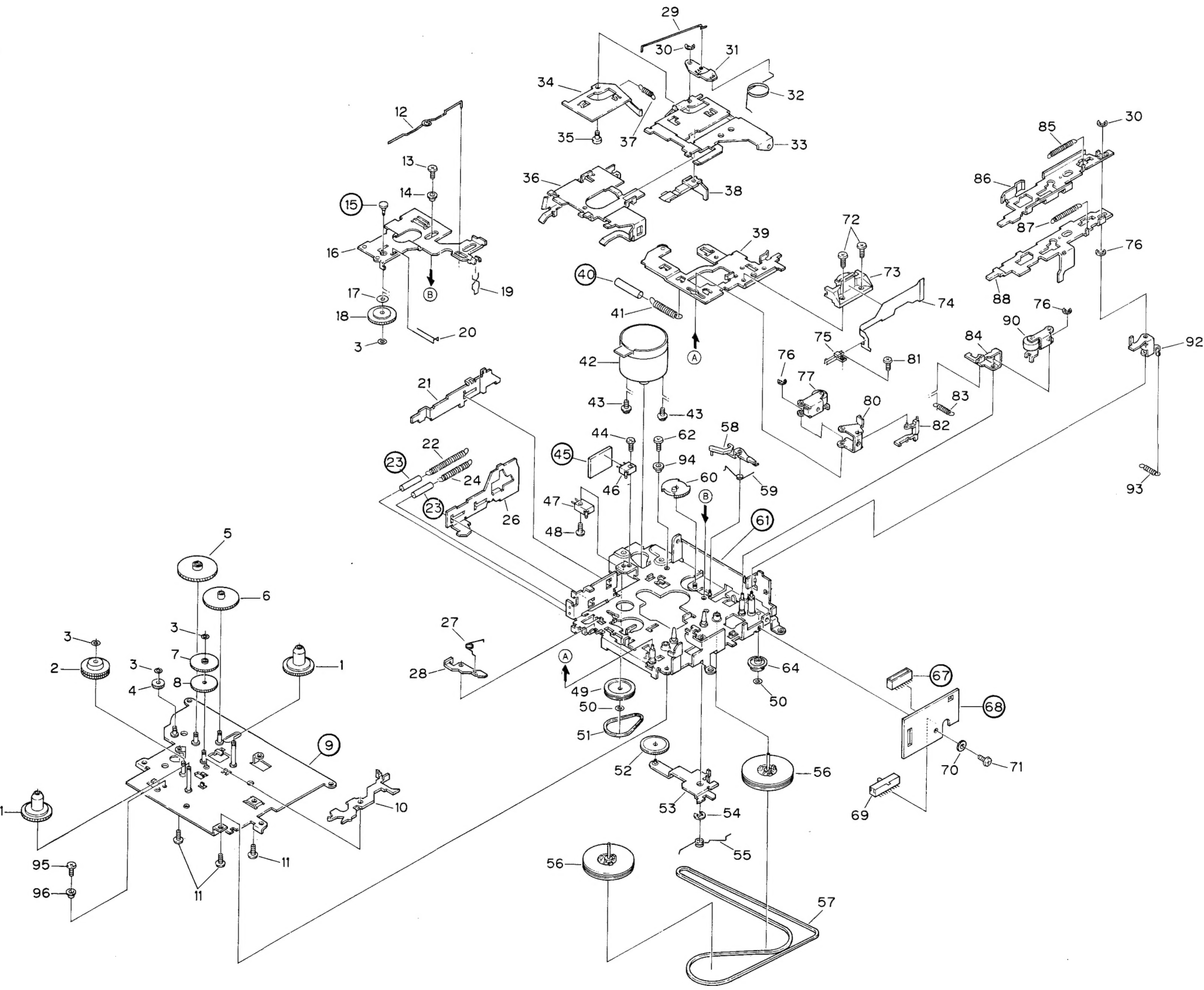


Fig. 15

15. PACKING METHOD

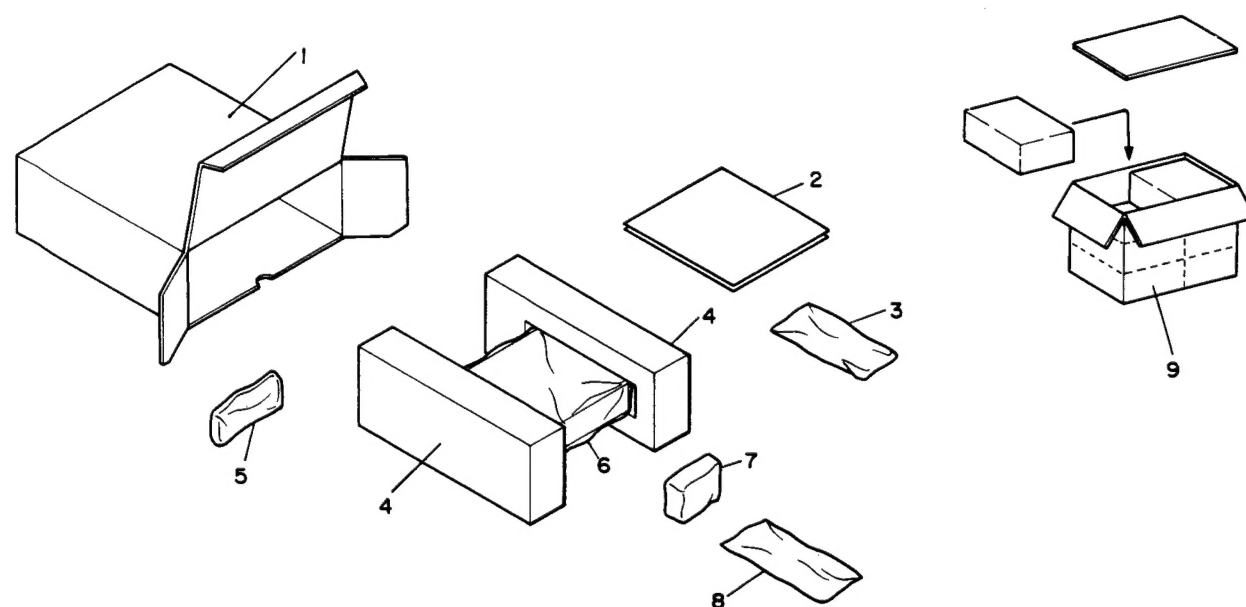


Fig. 16

• Parts List (KE-250/US)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Carton	CHG1896	3-4-8	Screw (× 2)	PMB50Y160FMC
2-1	Owner's Manual	CRB1195	3-4-9	Washer (× 1)	WS40FMC
2-2	Card	NSP	4	Styrofoam (× 2)	CHP1376
3	Accessory Assy	CEA1617	5	Cord Assy	CDE3010
3-1	Cord	CDE1289	6	Polyethylene Bag	CEG-215
3-2	Strap	CNF-111	7	Knob Assy	CXA3859
3-3	Cover	CNS-722	7-1	Knob (× 2)	CAA1238
3-4	Screw Assy		7-2	Knob (× 2)	CAA1239
3-4-1	Screw for Strap (× 1)	CBA-028	8	Panel Assy	CXA4062
3-4-2	Nut (× 4)	CBN-028	8-1	Plate	
3-4-3	Nut (× 2)	CBN1001	8-2	Panel	CNS2206
3-4-4	Spacer (× 2)	CNC1528	9	Contain Box	CHL1896
3-4-5	Spacer (× 10)	CND-646			
3-4-6	Nut (× 1)	NF40FMC			
3-4-7	Nut (× 2)	NF50FMC			

NSP: Non spare part

	KE-250/US	KE-3033/UC	KE-3033/XSG	KE-3838/UC	KE-3838/ES
No. Description	Part No.	Part No.	Part No.	Part No.	Part No.
1 Carton	CHG1896	CHG1897	CHG1920	CHG1895	CHG1898
2-1 Owner's Manual	CRB1195	CRD1423	CRD1443	CRD1422	CRD1424
2-2 Card	NSP	NSP	NSP	NSP	----
3 Accessory Assy	CEA1617	CEA1617	CEA1612	CEA1617	CEA1617
4 Styrofoam (× 2)	CHP1376	CHP1376	CHP1383	CHP1376	CHP1376
8 Panel Assy	CXA4062	CXA4064	CXA4064	CXA4464	CXA4064
8-2 Panel	CNS2206	CNS2208	CNS2208	CNS2208	CNS2208
9 Contain Box	CHL1896	CHL1897	CHL1920	CHL1895	CHL1898

	KE-3838/UC	KE-3838/XSG	KE-3838/XML
No. Description	Part No.	Part No.	Part No.
1 Carton	CHG1895	CHG1915	CHG1919
2-1 Owner's Manual	CRD1422	CRD1442	CRD1442
2-2 Card	NSP	NSP	NSP
3 Accessory Assy	CEA1617	CEA1612	CEA1612
4 Styrofoam (× 2)	CHP1376	CHP1383	CHP1383
8 Panel Assy	CXA4064	CXA4064	CXA4064
8-2 Panel	CNS2208	CNS2208	CNS2208
9 Contain Box	CHL1895	CHL1915	CHL1919

*Owner's Manual

Part No.	Model	Language
CRB1195	KE-250/US	English
CRD1423	KE-3033/UC	English, French, Spanish
CRD1422	KE-3838/UC	English, French
CRD1424	KE-3838/ES	English, French, Spanish, Arabic
CRD1442	KE-3838/XSG, XML	English, French
CRD1443	KE-3033/XSG	English, French, Spanish

16. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :

Unit Name : Tuner Amp Unit(KE-250/US)

Tuner Amp Unit
Consists of
• Tuner Amp P.C. Board
• Fader Volume P.C. Board
• B/T Volume P.C. Board

MISCELLANEOUS

Mark	=====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	=====	Circuit Symbol & No.	====	Part Name	Part No.			
IC	1				PAC001A	L	4			Coil	CTC1056			
IC	251				LA3161P	L	5			OSC Coil	CTC1024			
IC	401				AN6263N	L	6			Inductor	LAU150K			
IC	551				TA7280P	L	201			Ferri-Inductor	LAU4R7K			
IC	951				PD4275	L	202			Ferri-Inductor	LAU330K			
Q	1			Chip Transistor	3SK195	L	203			Ferri-Inductor	CTF-161			
Q	2				2SC2999	L	901				CTH1084			
Q	3	801			2SA1309A	L	951			Ferri-Inductor	LAU101K			
Q	151			Chip Transistor	2SC2712	T	1			Coil	CTC1064			
Q	152			Chip Transistor	DTA124EK	T	51			Coil	CTC1060			
Q	153			Chip Transistor	DTC124EK	T	201			Coil	CTB1056			
Q	201				2SK435	T	202			Coil	CTB1008			
Q	202	503	522		2SC2458	T	203	204		Coil	CTB1058			
Q	251				2SD1992A	T	205			Coil	CTE1041			
Q	401	402	457	913	DTC124ES	T	206			Coil	CTE1042			
Q	451	452			2SC2458	T	210			Coil	CTB1061			
Q	455	456	501	802	803	DTC343TS	TC	951		Trimmer	CCG-070			
Q	502				2SK330	CF	1			Ceramic Filter	CTF-182			
Q	911				2SD1684	CF	51	52		Ceramic Filter	CTF1130			
Q	912				2SA1150	CF	201			Filter	CTF1085			
Q	951				DTC114ES	H	1				DSP-201M			
Q	952				DTA124ES	X	151				CSS1066			
D	1			Chip Diode	1SV128A	X	951			Crystal Resonator	CSS1011			
D	2	3	4	Variable Capacitance Diode	SVC203	VR	151				VRMB6VS154			
D	5			Chip Diode	MA157-MR	VR	152				VRMB6VS333			
D	151				HZS4R3E	VR	451				CCS1178			
D	201	202	203	204	251	451	452	453	454	456	1SS133			
D	205				Variable Capacitance Diode	KV123523					LCD			
D	252	911			RD9R1JSB2						CAW1116			
D	457	458	459	954	955	956	958	960	963		1SS133			
RESISTORS														
D	501				RD3R0ESB2	Mark	=====	Circuit Symbol & No.	====	Part Name	Part No.			
D	901	902	978		ERA15-02VH	R	1	3	5		RS1/10S223J			
D	951				RD5R1JSB2	R	2				RD1/4PS151JL			
D	959	962			1S1555	R	4	159			RS1/10S333J			
D	961				RD5R6JSB2	R	6	451	452	955	956	967	RD1/4PS473JL	
D	967	968			1SS133	R	8						RS1/10S563J	
D	979				RD8R2JS									
L	1			Inductor	CTF1065	R	9	52					RD1/4PS563JL	
L	2			Coil	CTC1022	R	10	157	160	201	202	211	913	RS1/16S103J
L	3			Coil	CTC1020	R	13	17						RD1/4PS221JL

RESISTORS

Mark	=====	Circuit Symbol & No.						====	Part Name	Part No.
R	1	3	5							RS1/10S223J
R	2									RD1/4PS151JL
R	4	159								RS1/10S333J
R	6	451	452	955	956	967				RD1/4PS473JL
R	8									RS1/10S563J
R	9	52								RD1/4PS563JL
R	10	157	160	201	202	211	913			RS1/10S103J
R	13	17								RD1/4PS271JL
R	14									RS1/10S561J
R	15									RS1/10S683J

Mark	=====	Circuit Symbol & No.	=====	Part Name	Part No.		
R	16				RS1/10S474J		
R	18	51	310		RS1/10S331J		
R	20	155			RS1/10S182J		
R	21				RS1/10S101J		
R	22				RS1/10S223J		
R	23				RD1/4PS472JL		
R	24				RD1/4PS682JL		
R	25	223	966		RS1/10S472J		
R	26	204	219	405	RD1/4PS103JL		
R	53	480			RD1/4PS104JL		
R	54				RD1/4PS103JL		
R	55	104	158		RS1/10S682J		
R	56	153			RD1/4PS562JL		
R	57	210			RS1/10S473J		
R	58	251	252		RS1/10S513J		
R	59	224	553	554	902	953	RS1/10S0R0J
R	101				RS1/10S133J		
R	102				RS1/10S682J		
R	103				RS1/10S183J		
R	105				RS1/10S752J		
R	154				RS1/10S332J		
R	156				RS1/10S684J		
R	203				RD1/4PS513JL		
R	205				RS1/10S510J		
R	220				RD1/4PS752JL		
R	221				RS1/10S104J		
R	222				RD1/4PS220JL		
R	253	254	801		RS1/10S104J		
R	255	256			RS1/10S151J		
R	257	258			RS1/10S133J		
R	259	260			RS1/10S334J		
R	262	482			RD1/4PS392JL		
R	305	306	467	468	RD1/4PS153JL		
R	351	352	469	470	RS1/10S102J		
R	401	402			RS1/10S822J		
R	403				RS1/10S684J		
R	404				RS1/8S470J		
R	453	454	465	466	964	RD1/4PS331JL	
R	455	456	505	551	552	RD1/4PS152JL	
R	457	458			RS1/8S222J		
R	459	460			RD1/4PS333JL		
R	461	462			RD1/4PS564JL		
R	463	464			RD1/4PS132JL		
R	471	472	481	914	960	RD1/4PS222JL	
R	483	484			RD1/4PS561JL		
R	503	506	971		RD1/4PS102JL		
R	504	961			RD1/4PS472JL		
R	555	556			RS1/10S133J		
R	557				RD1/4PS010JL		
R	559				RD1/4PS682JL		
R	582				RS1/8S472J		
R	802	803			RD1/4PS390JL		
R	804	805			RD1/4PS751JL		
R	806	807			RD1/2PS220JL		
R	901				RD1/2PS3R3JL		
R	903	915			RS1/8S0R0J		
R	911				RS1/10S471J		
R	912				RD1/4PS221JL		
R	951				RD1/4PS471JL		
R	959				RD1/4PS222JL		
R	968				RD1/4PS122JL		
R	969	970			RD1/4PS102JL		

CAPACITORS

Mark	=====	Circuit	Symbol & No.	====	Part Name	Part No.					
C	1	3	17	56	203	CCSQCH220J50					
C	2	53	58	205	225	226	232	902	954	955	CKSQYB473K25
C	4	25	402	469	470						CCSQCH330J50
C	5	207	209								CCSOTH090D50
C	6										CCSQTH070D50
C	7	202									CKSQYB222K50
C	8	22	51	54	59	105	204	216	227	229	CKSQYB223K50
C	9										CCSQTH150J50
C	10										CCSQSL271J50
C	11	19	101	154	164	201	401	502			CKSQYB103K50
C	12	24									CCSQCH470J50
C	13	224									CEA3R3M50LS
C	14	959	960	961							CKSQYB102K50
C	15										CCSQCH080D50
C	16										CCSQCH100D50
C	18										CCSQCH120J50
C	20										CKSQYF104Z50
C	21	23									CKSYB223K50
C	27	52	912	958							CEA101M10LS
C	55	155	156	157	468						CEA010M50LS2
C	57	222									CEAR47M50LS2
C	60										CCDLH910J50
C	61	309									CKSYB473K50
C	102	206	262								CEA470M16LS
C	103										CKSQYB182K50
C	104										CKSQYB682K50
C	106	165									CKSQYB102K50
C	151	152	230								CKSQYB223K50
C	153										CKSQYB332K50
C	158										CEAR22M50LS2
C	159	404									CEA0R1M50LS2
C	161	310	313	314	467						CEA100M16LS2
C	162	163									CKSQYB152K50
C	208										CCSQCH010C50
C	217										CCSQRH101J50
C	218										CCSQJ180J50
C	228										CEA220M16LS
C	231										CQPA43102A
C	251	252									CKSQYB102K50
C	253	254									CEANL2R2M50LL
C	255	256									CEA470M10LS
C	257	258									CKSQYB103K50
C	261										CEA221M10L2
C	403										CEA330M10LS
C	451	452									CEA100M16L2
C	453	454									CEA0R1M50L2
C	455	456									CEAR47M50L2
C	457	458									CKSQYB822K50
C	459	460									CKSYB393K25
C	461	462									CEALNP2R2M35
C	503					4.7 μ F/16V					CCH1005
C	551	552									CKSQYB102K50
C	553	554									CEA010M50L2
C	555	556									CEA221M10L2
C	557	558									CEA470M10L2
C	559	560	565								CQEA224J63
C	561	562									CEA102M10L2
C	563										CEA470M16L2
C	901										CEA222M16L2
C	903										CEA331M16L2
C	904										CEA221M16L2
C	911										CEA331M10L2
C	951										CCSQCH100D50
C	956										CEA471M6R3L2

Tuner Amp Unit	KE-250/US	KE-3033/UC, /XSG	KE-3838/UC, /XSG, /XML	KE-3838/ES
Symbol & No.	Part No.	Part No.	Part No.	Part No.
IC401	AN6263N	AN6263N	----	----
Q401, 402	DTC124ES	DTC124ES	----	----
Q801	2SA1309A	----	DTC343TS	DTC343TS
D952	----	----	----	1SS133
D954	1SS133	1SS133	1SS133	----
D956	1SS133	1SS133	----	----
R56	RD1/4PS562JL	RD1/4PS562JL	RD1/4PS562JL	RD1/4PS153JL
R401, 402	RS1/10S822J	RS1/10S822J	----	----
R403	RS1/10S684J	RS1/10S684J	----	----
R404	RS1/8S470J	RS1/8S470J	----	----
R405	RD1/4PS103JL	RD1/4PS103JL	----	----
R467, 468	RD1/4PS153JL	RD1/4PS153JL	RD1/4PS153JL	RD1/4PS103JL
R801	RS1/10S104J	----	RS1/10S104J	RS1/10S104J
R802, 803	RD1/4PS390JL	----	RD1/4PS390JL	RD1/4PS390JL
R804, 805	RD1/4PS751JL	----	RD1/4PS751JL	RD1/4PS751JL
C151, 152	CKSQYB223K50	CKSQYB223K50	CKSQYB223K50	CKSQYB153K50
C309	CKSYB473K50	CKSYB473K50	----	----
C401	CKSQYB103K50	CKSQYB103K50	----	----
C402	CCSQCH330J50	CCSQCH330J50	----	----
C403	CEA330M10LS	CEA330M10LS	----	----
C404	CEA0R1M50LS2	CEA0R1M50LS2	----	----
C463, 464	----	CEAR22M50LS2	CEAR22M50LS2	CEAR22M50LS2
C465, 466	----	CKSQYB152K50	CKSQYB152K50	CKSQYB152K50
C903	CEA331M16L2	CEA331M16L2	CEA101M16L2	CEA101M16L2

Unit Number :

Unit Name : Key Board Unit

MISCELLANEOUS

Mark ===== Circuit Symbol & No. ==== Part Name Part No.

IL	901	902	Lamp 14V 40mA	CEL1004
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Unit Number :

Unit Name : P. C. Board (A)

Mark ===== Circuit Symbol & No. ==== Part Name Part No.

D	1	(KE-250, 3033)		1SR-35-100A
S	2		Switch (FWD/REV)	ESH1003

Unit Number :

Unit Name : P. C. Board (B)

Mark ===== Circuit Symbol & No. ==== Part Name Part No.

S	3		Switch (TAPE/TUN)	ESH1004
S	4		Switch (MUTE)	CSN1005

Miscellaneous Parts List

Mark ===== Circuit Symbol & No. ==== Part Name Part No.

S	1		Switch (MUTE)	ESN1005
M	1		Motor Unit	EXA1162
HD	1		Head Unit	EXA1163
SO	1		Solenoid (KE-250, 3033)	EXP1008